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**CORN PRODUCTION INDICATORS REPORT:
APPENDIX I**



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Section I: World countries trend and risk

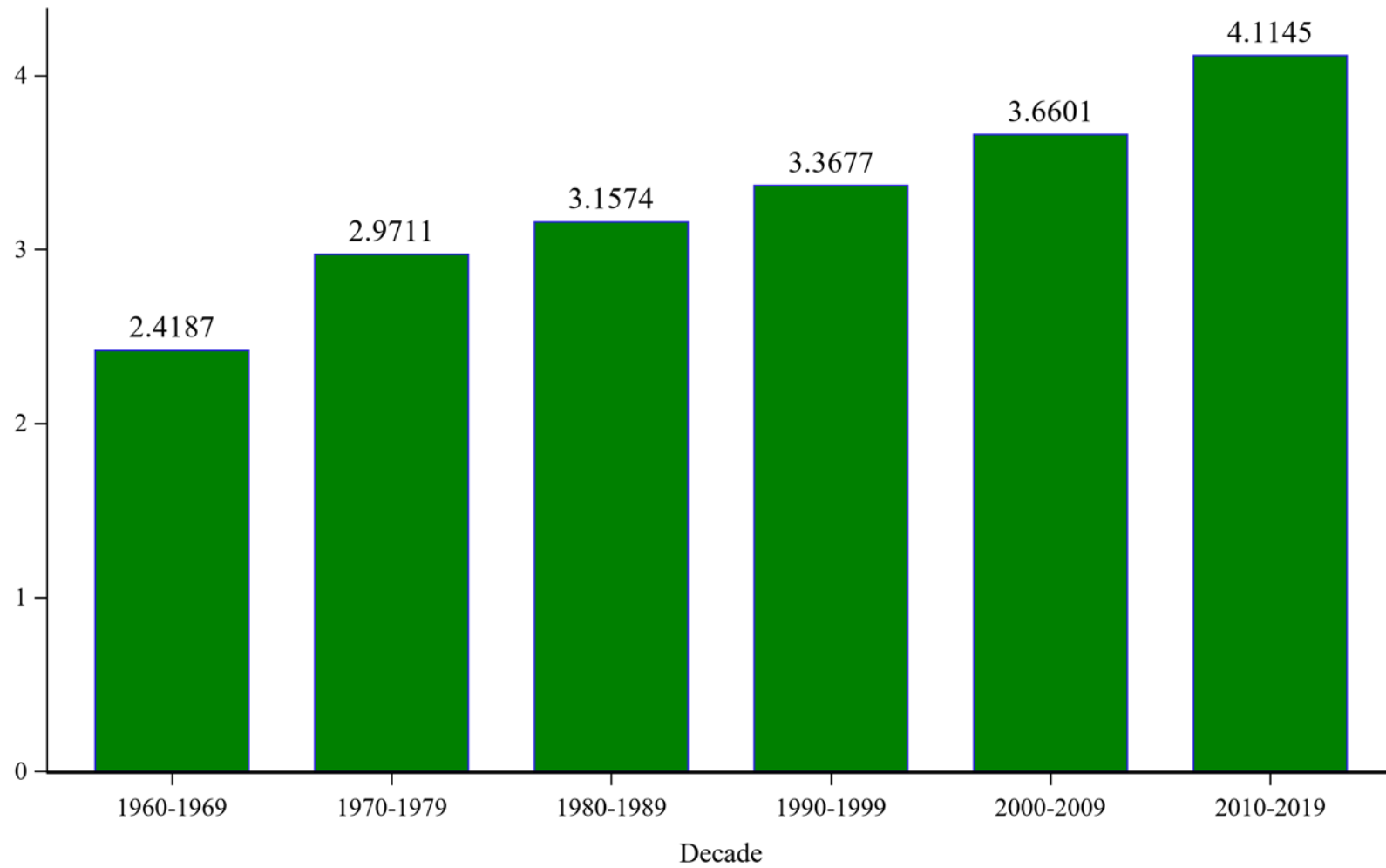
Figure 1: Global Harvested Acreage, Annual Trends



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Figure 2: Global Harvested Acreage, Decadal Changes



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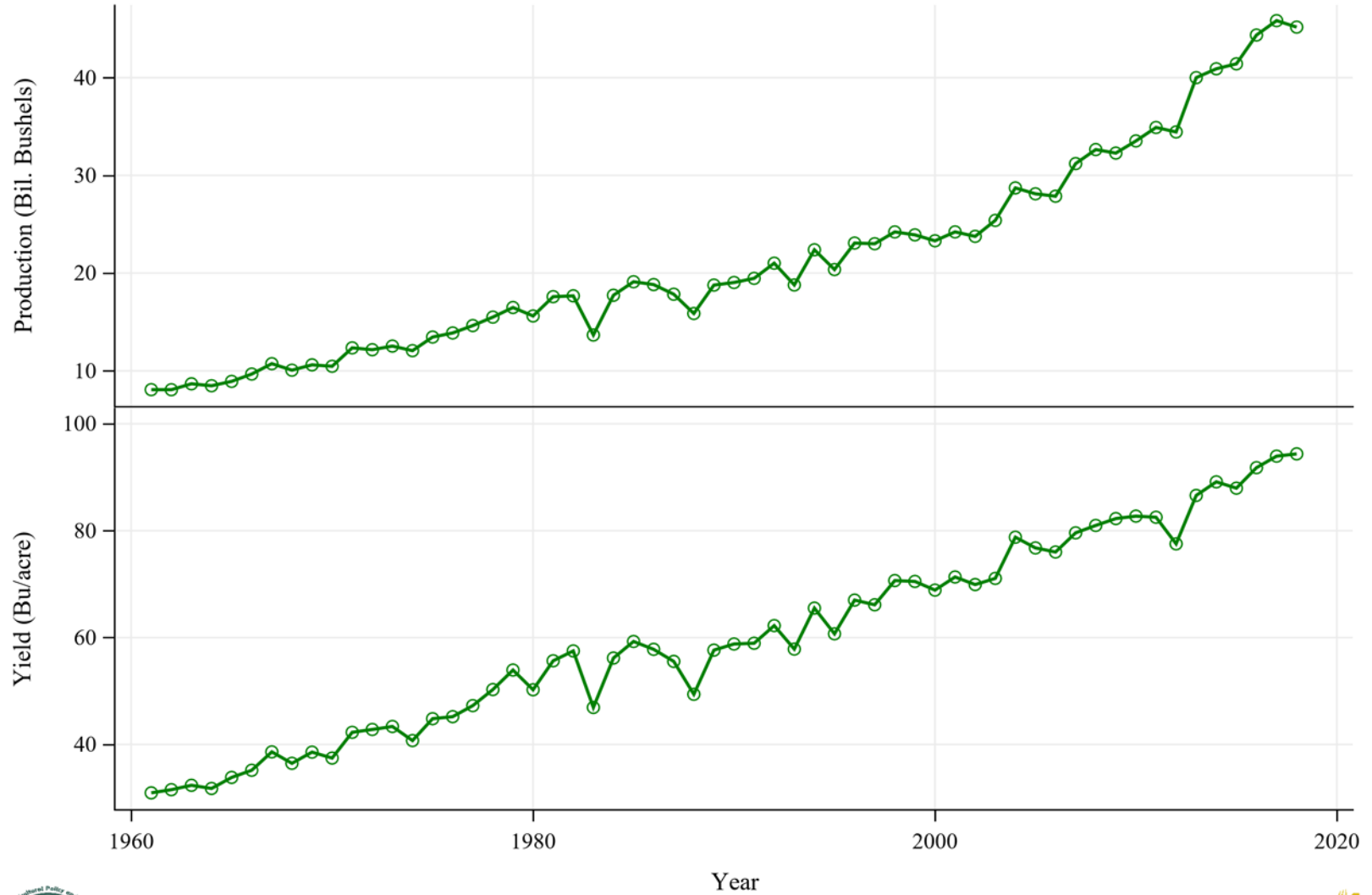


Table 1: Global Harvested Acreage, Descriptive Statistics

| Decade | Harvested (Acres) | | | | |
|-----------|-------------------|---------------|-------------|------------|--------------------------|
| | N | Sum | Mean | Risk | Coefficient of Variation |
| 1960-1969 | 9 | 2,418,664,793 | 268,740,533 | 7,719,886 | 2.9 |
| 1970-1979 | 10 | 2,971,132,403 | 297,113,240 | 10,704,660 | 3.6 |
| 1980-1989 | 10 | 3,157,398,250 | 315,739,825 | 10,535,896 | 3.3 |
| 1990-1999 | 10 | 3,367,735,857 | 336,773,586 | 8,180,481 | 2.4 |
| 2000-2009 | 10 | 3,660,089,118 | 366,008,912 | 23,544,410 | 6.4 |
| 2010-2019 | 9 | 4,114,515,337 | 457,168,371 | 28,136,981 | 6.2 |

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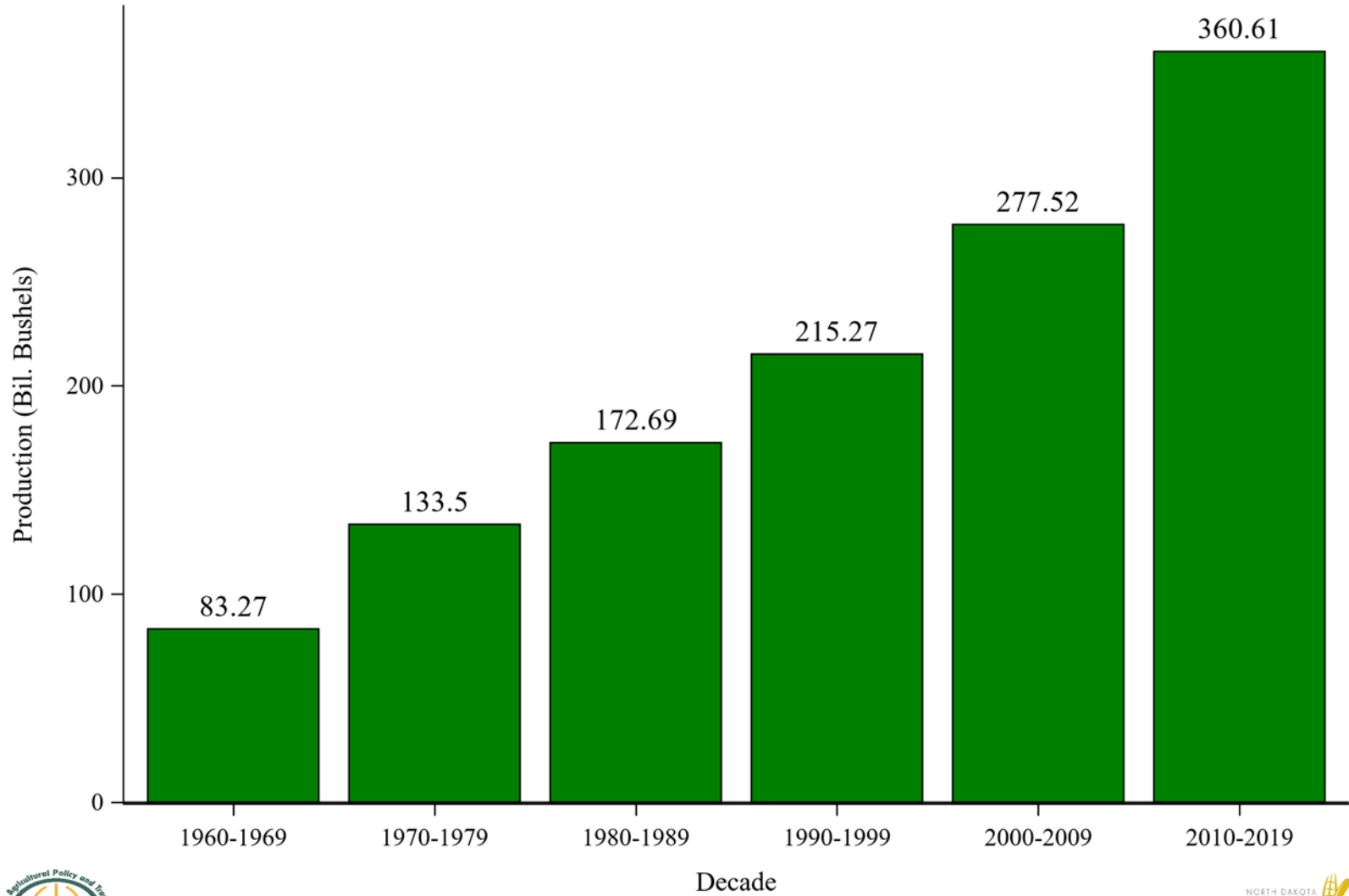
Figure 3: Global Production and Yield, Annual Trends



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Figure 4: Global Production, Decadal Changes



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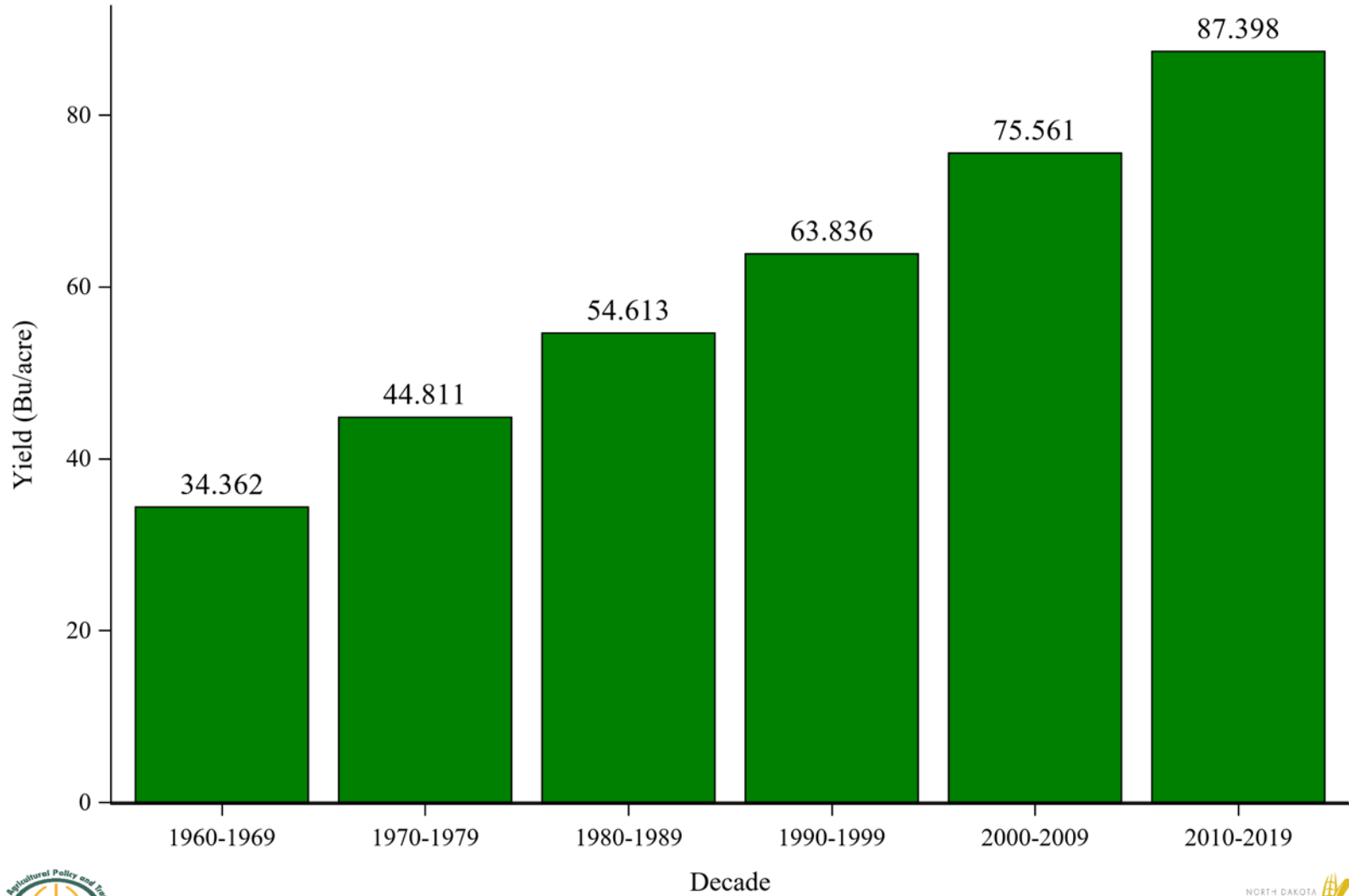


Table 2: Global Production, Descriptive Statistics

| Decade | Production (Bushels) | | | | |
|-----------|----------------------|-----------------|----------------|---------------|--------------------------|
| | N | Sum | Mean | Risk | Coefficient of Variation |
| 1960-1969 | 9 | 83,270,169,560 | 9,252,241,062 | 1,044,248,559 | 11.3 |
| 1970-1979 | 10 | 133,495,397,882 | 13,349,539,788 | 1,807,323,075 | 13.5 |
| 1980-1989 | 10 | 172,691,852,452 | 17,269,185,245 | 1,718,990,102 | 10.0 |
| 1990-1999 | 10 | 215,267,218,999 | 21,526,721,900 | 2,049,706,361 | 9.5 |
| 2000-2009 | 10 | 277,524,330,863 | 27,752,433,086 | 3,515,956,134 | 12.7 |
| 2010-2019 | 9 | 360,609,849,739 | 40,067,761,082 | 4,762,492,828 | 11.9 |

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Figure 5: Global Yield, Decadal Changes



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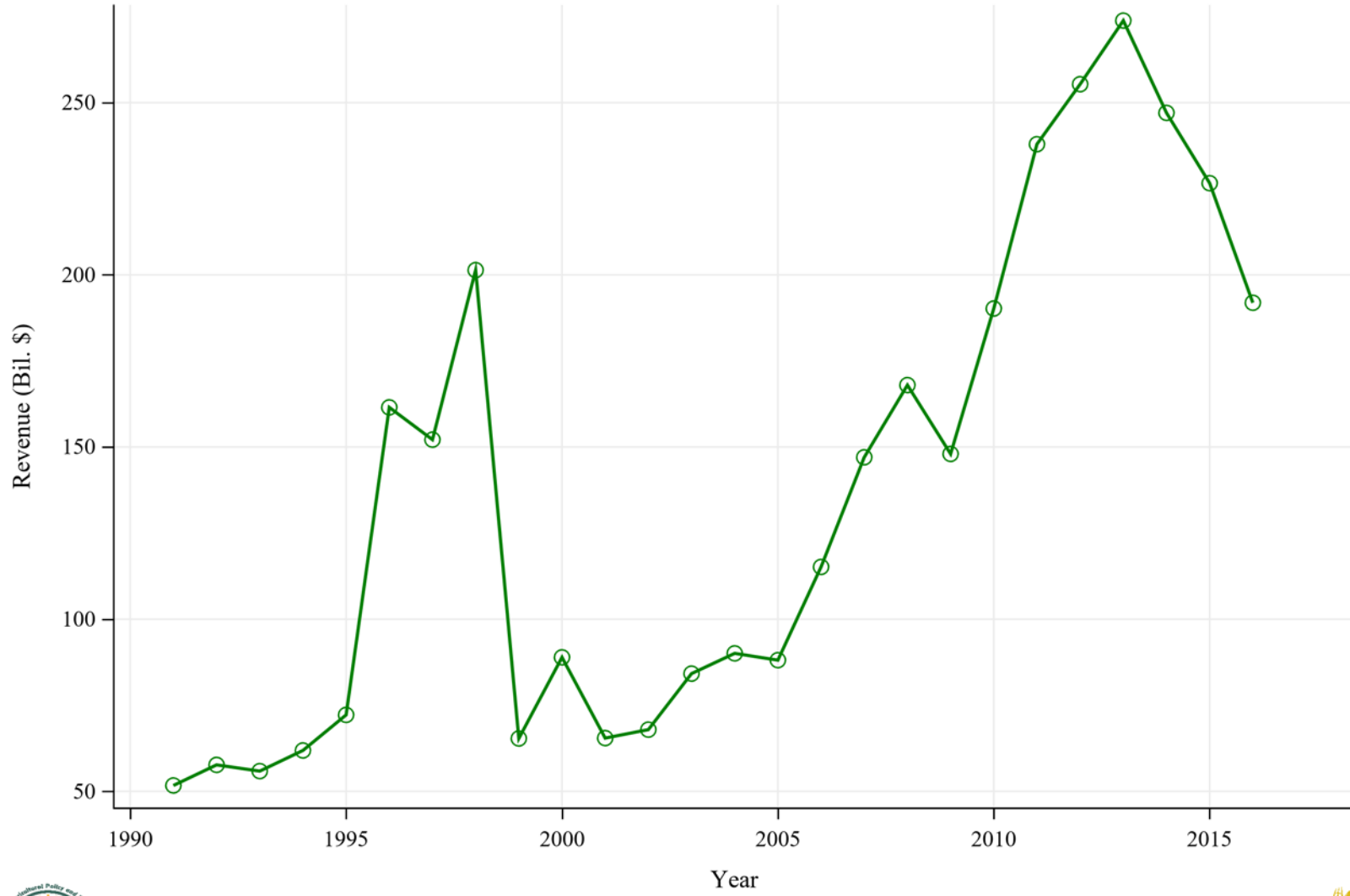


Table 3: Global Yield, Descriptive Statistics

| Decade | Yield (Bu/acre) | | | |
|-----------|-----------------|-------|------|--------------------------|
| | N | Mean | Risk | Coefficient of Variation |
| 1960-1969 | 9 | 34.36 | 2.99 | 8.7 |
| 1970-1979 | 10 | 44.81 | 4.74 | 10.6 |
| 1980-1989 | 10 | 54.61 | 4.21 | 7.7 |
| 1990-1999 | 10 | 63.84 | 4.80 | 7.5 |
| 2000-2009 | 10 | 75.56 | 4.91 | 6.5 |
| 2010-2019 | 9 | 87.40 | 5.68 | 6.5 |

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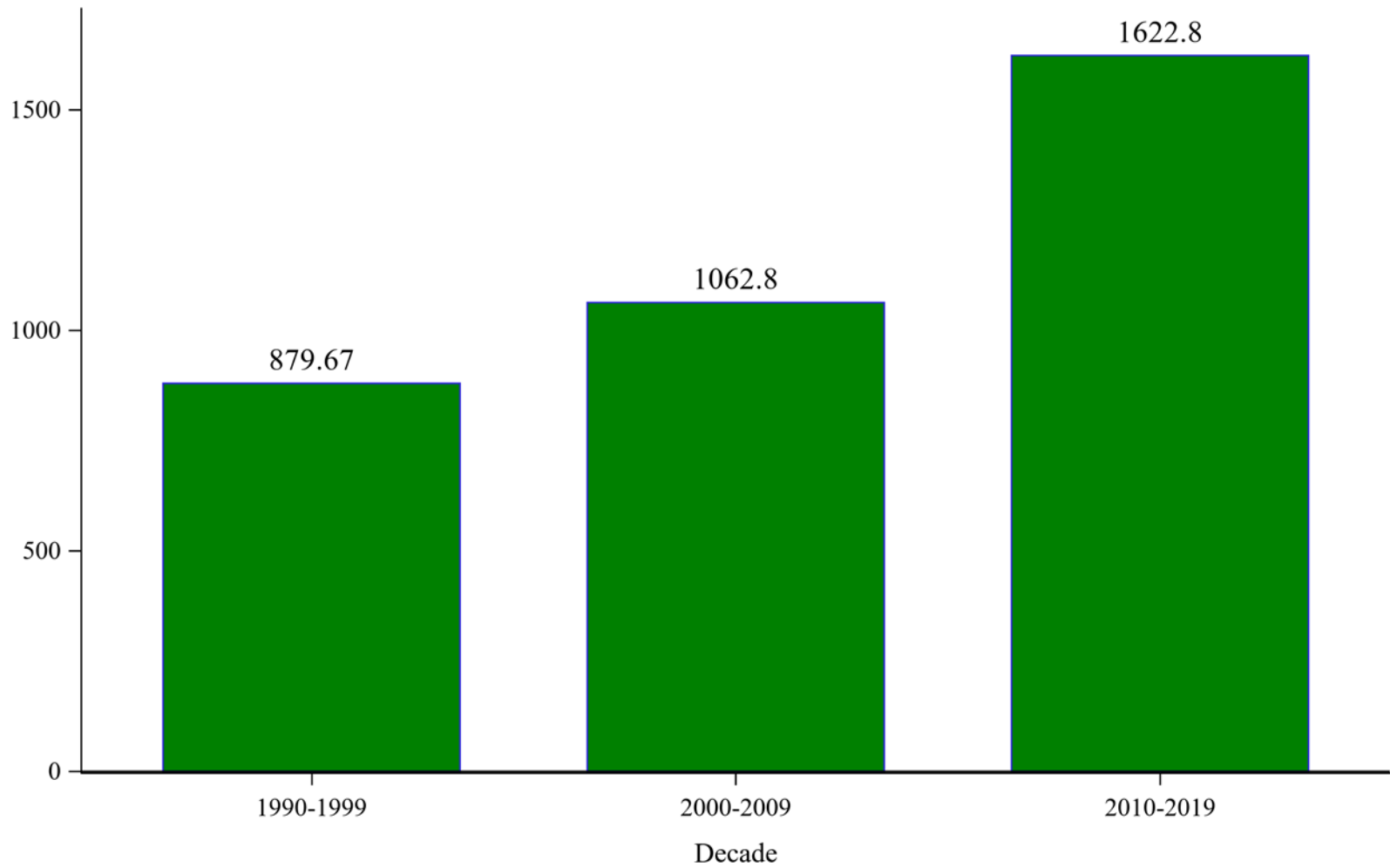
Figure 6: Global Revenue, Annual Trends



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Figure 7: Global Revenue, Decadal Changes



Group ■ Revenue (Bil. \$)

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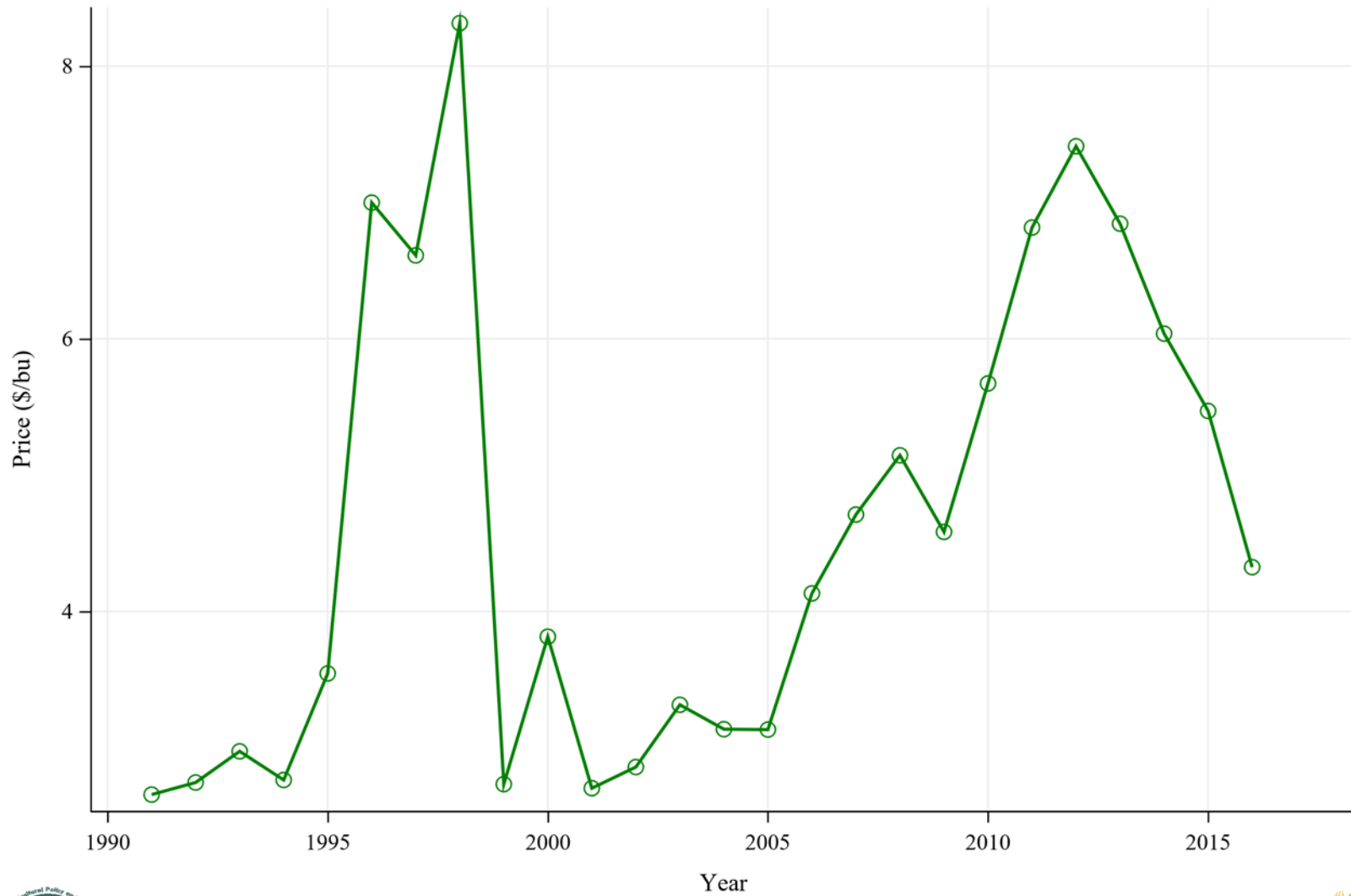


Table 4: Global Revenue, Descriptive Statistics

| Decade | Revenue (\$) | | | | |
|-----------|--------------|-------------------|-----------------|----------------|--------------------------|
| | N | Sum | Mean | Risk | Coefficient of Variation |
| 1990-1999 | 9 | 879,667,493,642 | 97,740,832,627 | 57,258,050,235 | 58.6 |
| 2000-2009 | 10 | 1,062,774,516,968 | 106,277,451,697 | 36,216,261,958 | 34.1 |
| 2010-2019 | 7 | 1,622,849,975,166 | 231,835,710,738 | 31,467,976,394 | 13.6 |

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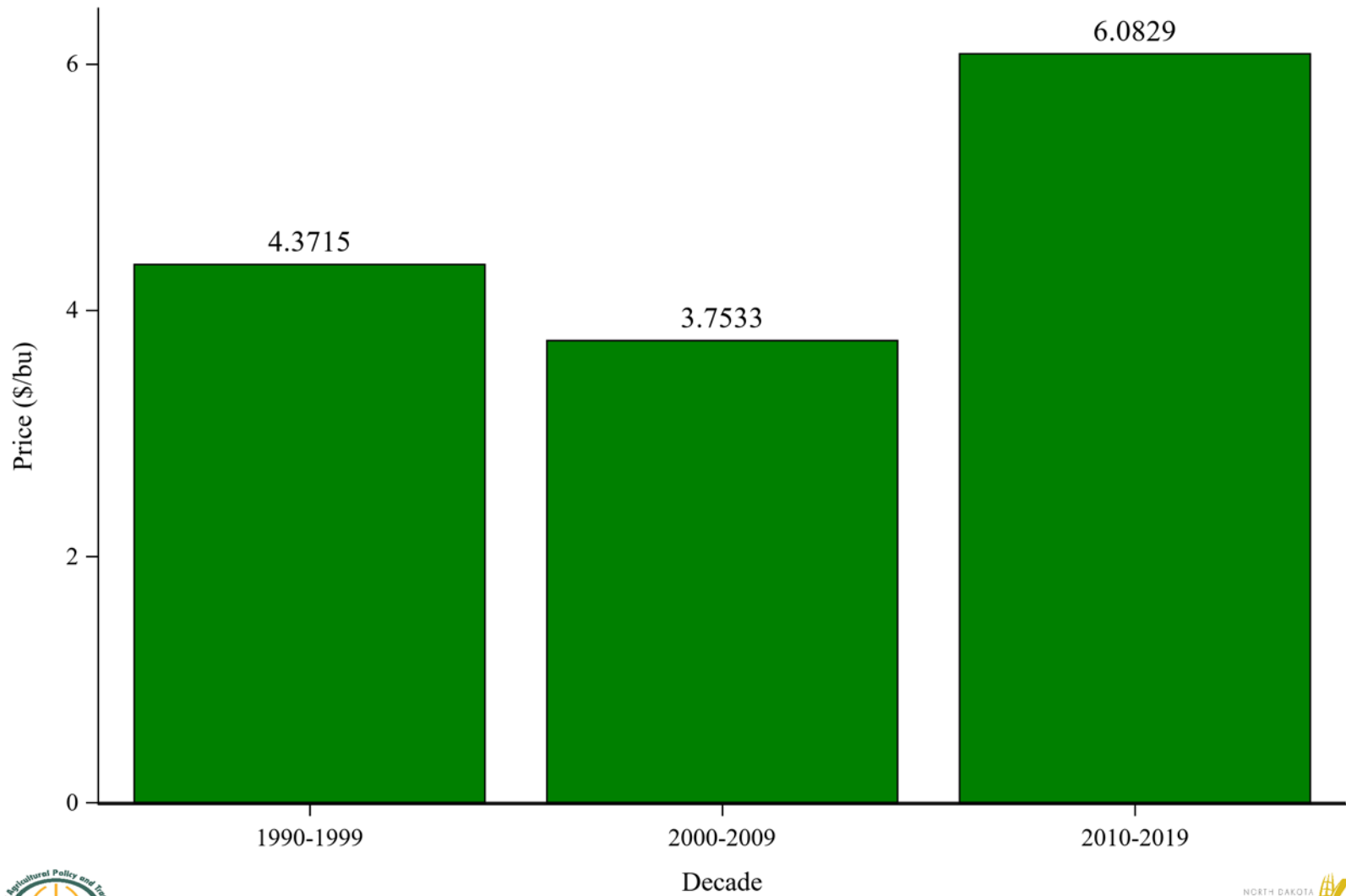
Figure 8: Global Price, Annual Trends



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Figure 9: Global Price, Decadal Changes



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Table 5: Global Price, Descriptive Statistics

| Decade | Price (\$/bu) | | | |
|-----------|---------------|------|------|--------------------------|
| | N | Mean | Risk | Coefficient of Variation |
| 1990-1999 | 9 | 4.37 | 2.26 | 51.8 |
| 2000-2009 | 10 | 3.75 | 0.85 | 22.7 |
| 2010-2019 | 7 | 6.08 | 1.04 | 17.1 |

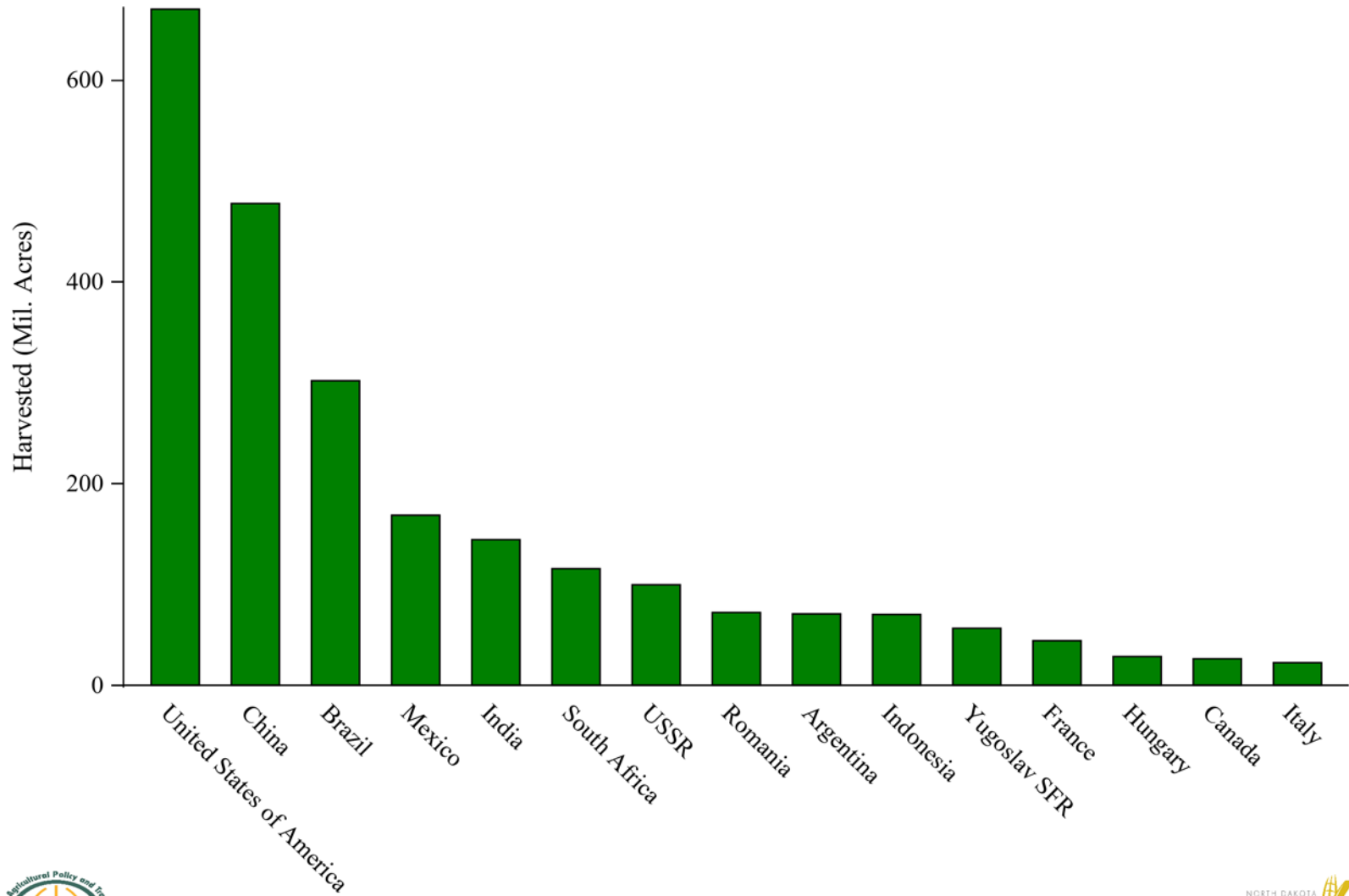
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Table 6: Global Production Indicators, Annual Trends

| Year | Harvested (Acres) | Production (Bushels) | Revenue (\$) | Yield (Bu/acre) | Price (\$/bu) |
|-------------|--------------------------|-----------------------------|---------------------|------------------------|----------------------|
| 2010 | 405,301,658 | 33,528,919,304 | 190,202,678,205 | 82.7 | 5.67 |
| 2011 | 423,049,876 | 34,906,841,113 | 237,934,722,359 | 82.5 | 6.82 |
| 2012 | 444,274,957 | 34,448,541,651 | 255,361,070,902 | 77.5 | 7.41 |
| 2013 | 461,981,192 | 40,006,044,341 | 273,825,272,131 | 86.6 | 6.84 |
| 2014 | 458,963,462 | 40,912,274,954 | 247,034,022,131 | 89.1 | 6.04 |
| 2015 | 470,922,172 | 41,420,150,617 | 226,606,386,732 | 88.0 | 5.47 |
| 2016 | 483,348,668 | 44,367,365,350 | 191,885,822,706 | 91.8 | 4.32 |
| 2017 | 487,948,018 | 45,840,131,954 | . | 93.9 | . |
| 2018 | 478,725,333 | 45,179,580,455 | . | 94.4 | . |

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Figure 10: Top 15 Countries Harvested Acreage, 1980 to 1989



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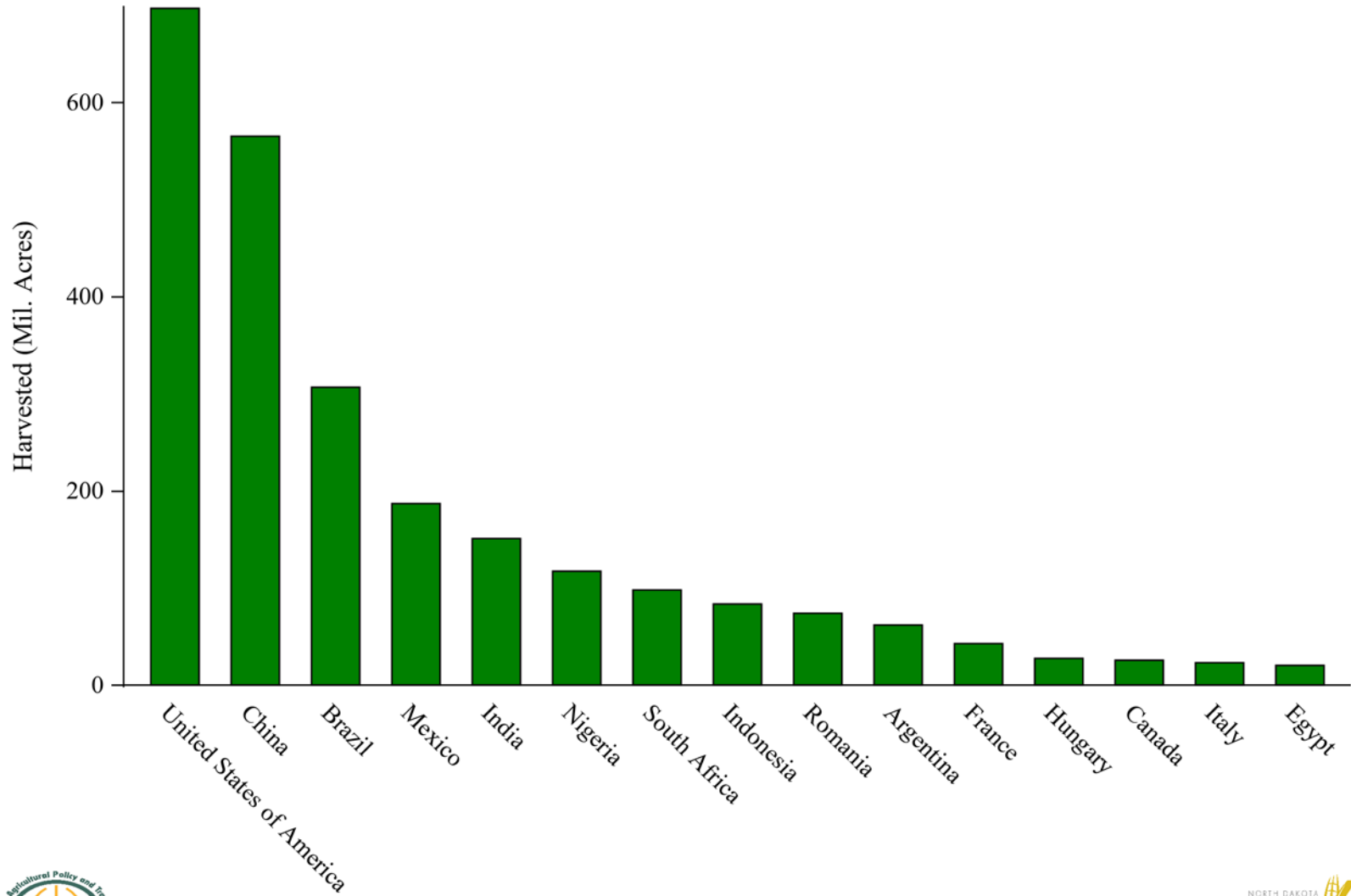


Table 7: Top 15 Countries Harvested Acreage, Descriptive Statistics for 1980 to 1989

| Country | Harvested (Acres) | | | | | Share |
|--------------------------|-------------------|-------------|------------|-----------|--------------------------|-------|
| | N | Sum | Mean | Risk | Coefficient of Variation | |
| United States of America | 10 | 670,225,936 | 67,022,594 | 8,153,304 | 12.2 | 21.2 |
| China | 10 | 477,620,381 | 47,762,038 | 2,222,645 | 4.7 | 15.1 |
| Brazil | 10 | 301,899,234 | 30,189,923 | 2,157,249 | 7.1 | 9.56 |
| Mexico | 10 | 168,588,392 | 16,858,839 | 1,528,623 | 9.1 | 5.34 |
| India | 10 | 144,337,243 | 14,433,724 | 316,805 | 2.2 | 4.57 |
| South Africa | 10 | 115,541,356 | 11,554,136 | 495,183 | 4.3 | 3.66 |
| USSR | 10 | 99,617,910 | 9,961,791 | 1,198,035 | 12.0 | 3.15 |
| Romania | 10 | 72,163,548 | 7,216,355 | 530,501 | 7.4 | 2.28 |
| Argentina | 10 | 70,773,343 | 7,077,334 | 1,299,509 | 18.4 | 2.24 |
| Indonesia | 10 | 70,174,012 | 7,017,401 | 955,616 | 13.6 | 2.22 |
| Yugoslav SFR | 10 | 56,509,370 | 5,650,937 | 158,540 | 2.8 | 1.79 |
| France | 10 | 44,177,679 | 4,417,768 | 351,199 | 7.9 | 1.40 |
| Hungary | 10 | 28,443,439 | 2,844,344 | 117,201 | 4.1 | 0.90 |
| Canada | 10 | 26,264,296 | 2,626,430 | 159,288 | 6.1 | 0.83 |
| Italy | 10 | 22,399,888 | 2,239,989 | 207,906 | 9.3 | 0.71 |

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Figure 11: Top 15 Countries Harvested Acreage, 1990 to 1999



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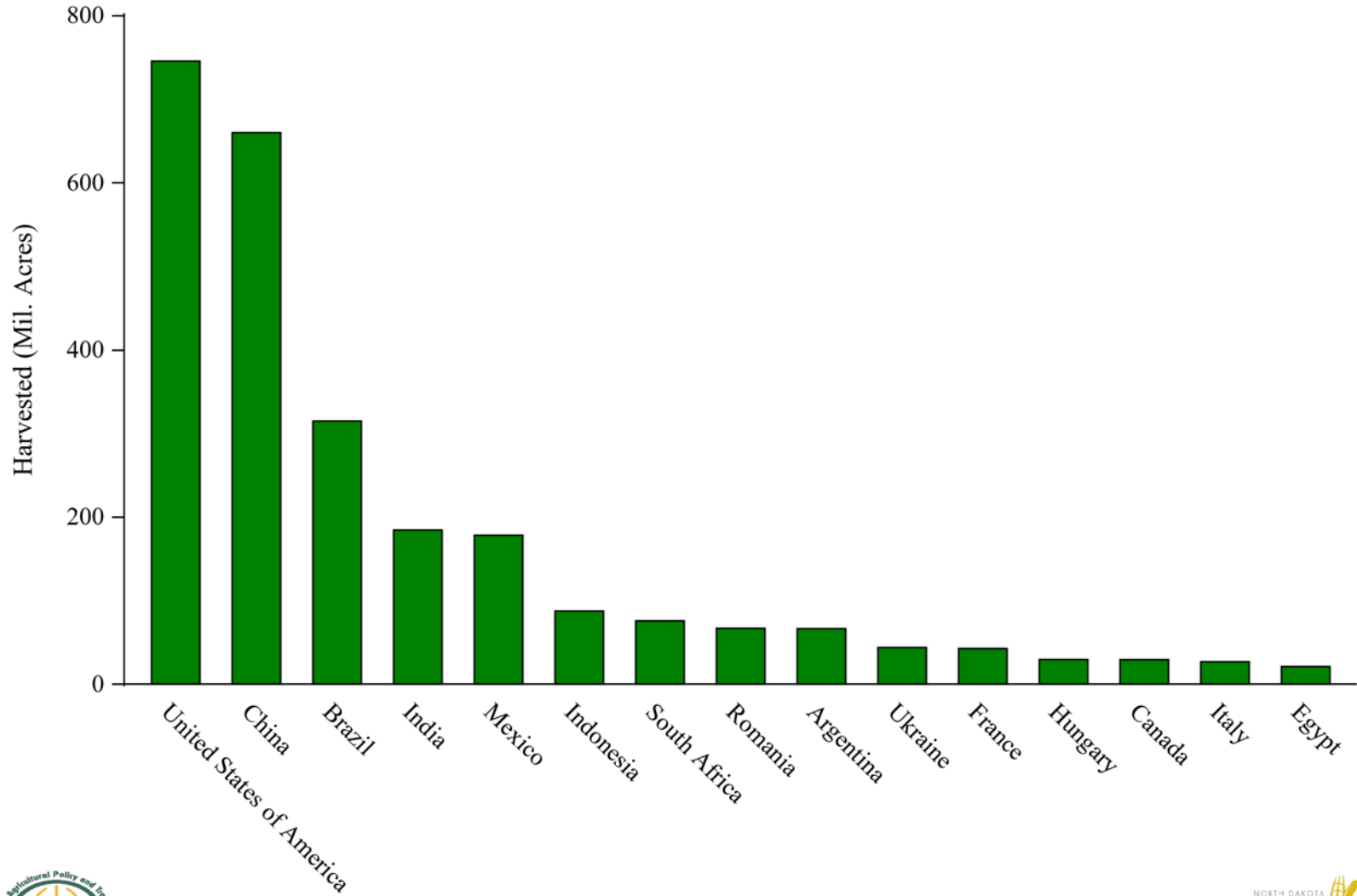


Table 8: Top 15 Countries Harvested Acreage, Descriptive Statistics for 1990 to 1999

| Country | Harvested (Acres) | | | | | Share |
|--------------------------|-------------------|-------------|------------|-----------|--------------------------|-------|
| | N | Sum | Mean | Risk | Coefficient of Variation | |
| United States of America | 10 | 696,905,413 | 69,690,541 | 3,563,772 | 5.1 | 20.7 |
| China | 10 | 565,198,146 | 56,519,815 | 4,705,675 | 8.3 | 16.8 |
| Brazil | 10 | 306,710,005 | 30,671,001 | 2,730,738 | 8.9 | 9.10 |
| Mexico | 10 | 186,920,472 | 18,692,047 | 1,072,337 | 5.7 | 5.55 |
| India | 10 | 150,938,653 | 15,093,865 | 483,593 | 3.2 | 4.48 |
| Nigeria | 10 | 117,267,137 | 11,726,714 | 1,810,941 | 15.4 | 3.48 |
| South Africa | 10 | 97,920,775 | 9,792,078 | 945,914 | 9.7 | 2.91 |
| Indonesia | 10 | 83,487,590 | 8,348,759 | 831,412 | 10.0 | 2.48 |
| Romania | 10 | 73,926,257 | 7,392,626 | 678,687 | 9.2 | 2.19 |
| Argentina | 10 | 61,800,503 | 6,180,050 | 1,321,490 | 21.4 | 1.83 |
| France | 10 | 42,716,429 | 4,271,643 | 237,297 | 5.6 | 1.27 |
| Hungary | 10 | 27,474,730 | 2,747,473 | 183,260 | 6.7 | 0.82 |
| Canada | 10 | 25,610,456 | 2,561,046 | 213,704 | 8.3 | 0.76 |
| Italy | 10 | 23,024,184 | 2,302,418 | 216,921 | 9.4 | 0.68 |
| Egypt | 10 | 20,280,434 | 2,028,043 | 119,277 | 5.9 | 0.60 |

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Figure 12: Top 15 Countries Harvested Acreage, 2000 to 2009



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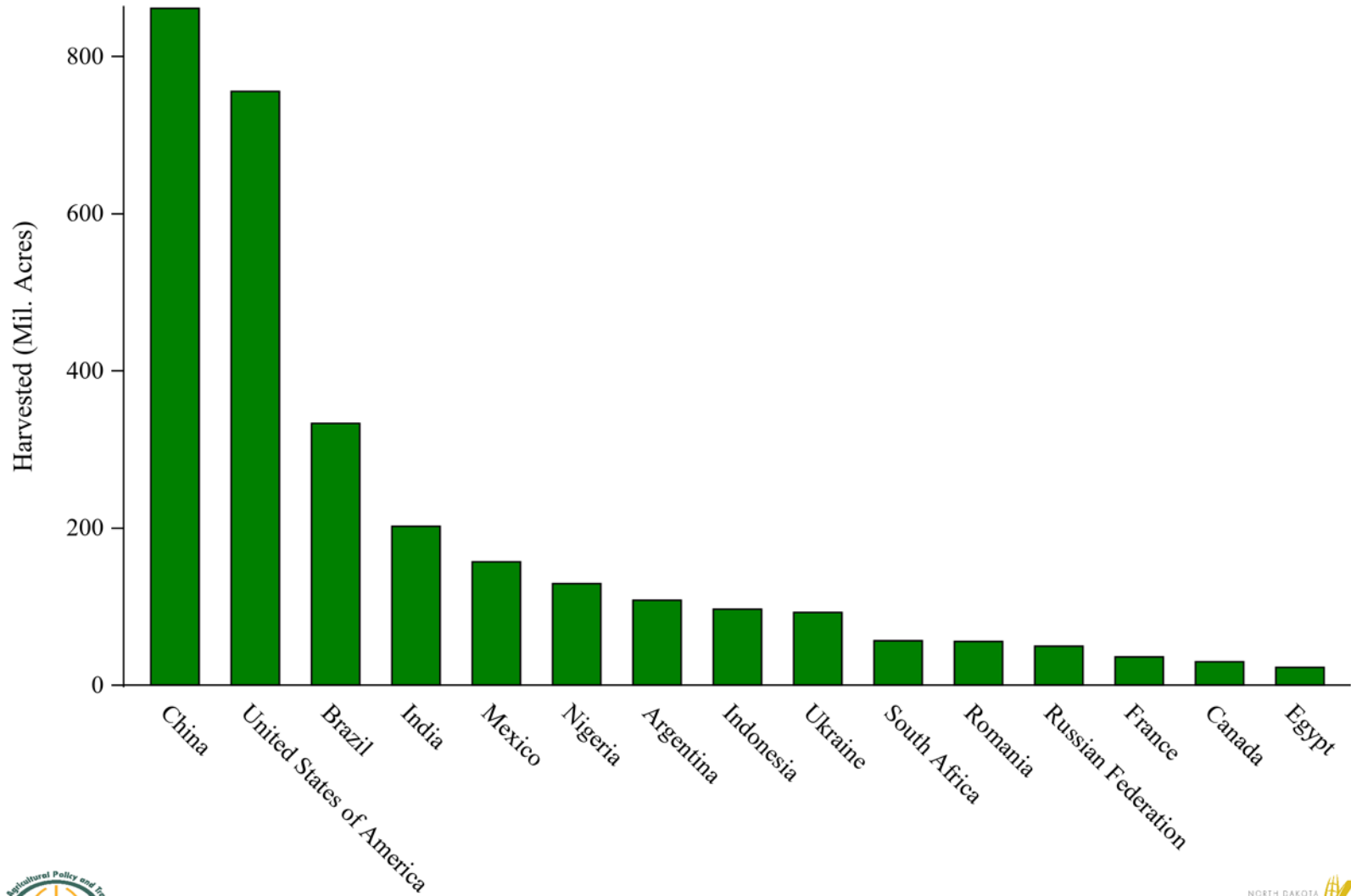


Table 9: Top 15 Countries Harvested Acreage, Descriptive Statistics for 2000 to 2009

| Country | Harvested (Acres) | | | | | Share |
|--------------------------|-------------------|-------------|------------|-----------|--------------------------|-------|
| | N | Sum | Mean | Risk | Coefficient of Variation | |
| United States of America | 10 | 745,454,874 | 74,545,487 | 5,562,323 | 7.5 | 20.4 |
| China | 10 | 659,925,065 | 65,992,506 | 7,025,847 | 10.6 | 18.0 |
| Brazil | 10 | 314,792,217 | 31,479,222 | 2,363,707 | 7.5 | 8.60 |
| India | 10 | 184,431,265 | 18,443,126 | 1,642,338 | 8.9 | 5.04 |
| Mexico | 10 | 178,115,804 | 17,811,580 | 1,188,691 | 6.7 | 4.87 |
| Indonesia | 10 | 87,460,944 | 8,746,094 | 805,557 | 9.2 | 2.39 |
| South Africa | 10 | 75,671,505 | 7,567,151 | 1,502,149 | 19.9 | 2.07 |
| Romania | 10 | 66,734,605 | 6,673,460 | 798,362 | 12.0 | 1.82 |
| Argentina | 10 | 66,273,082 | 6,627,308 | 913,424 | 13.8 | 1.81 |
| Ukraine | 10 | 43,714,110 | 4,371,411 | 1,138,225 | 26.0 | 1.19 |
| France | 10 | 42,526,170 | 4,252,617 | 321,778 | 7.6 | 1.16 |
| Hungary | 10 | 29,286,694 | 2,928,669 | 116,277 | 4.0 | 0.80 |
| Canada | 10 | 29,110,699 | 2,911,070 | 257,643 | 8.9 | 0.80 |
| Italy | 10 | 26,754,142 | 2,675,414 | 202,019 | 7.6 | 0.73 |
| Egypt | 10 | 20,983,657 | 2,098,366 | 172,546 | 8.2 | 0.57 |

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Figure 13: Top 15 Countries Harvested Acreage, 2010 to 2019



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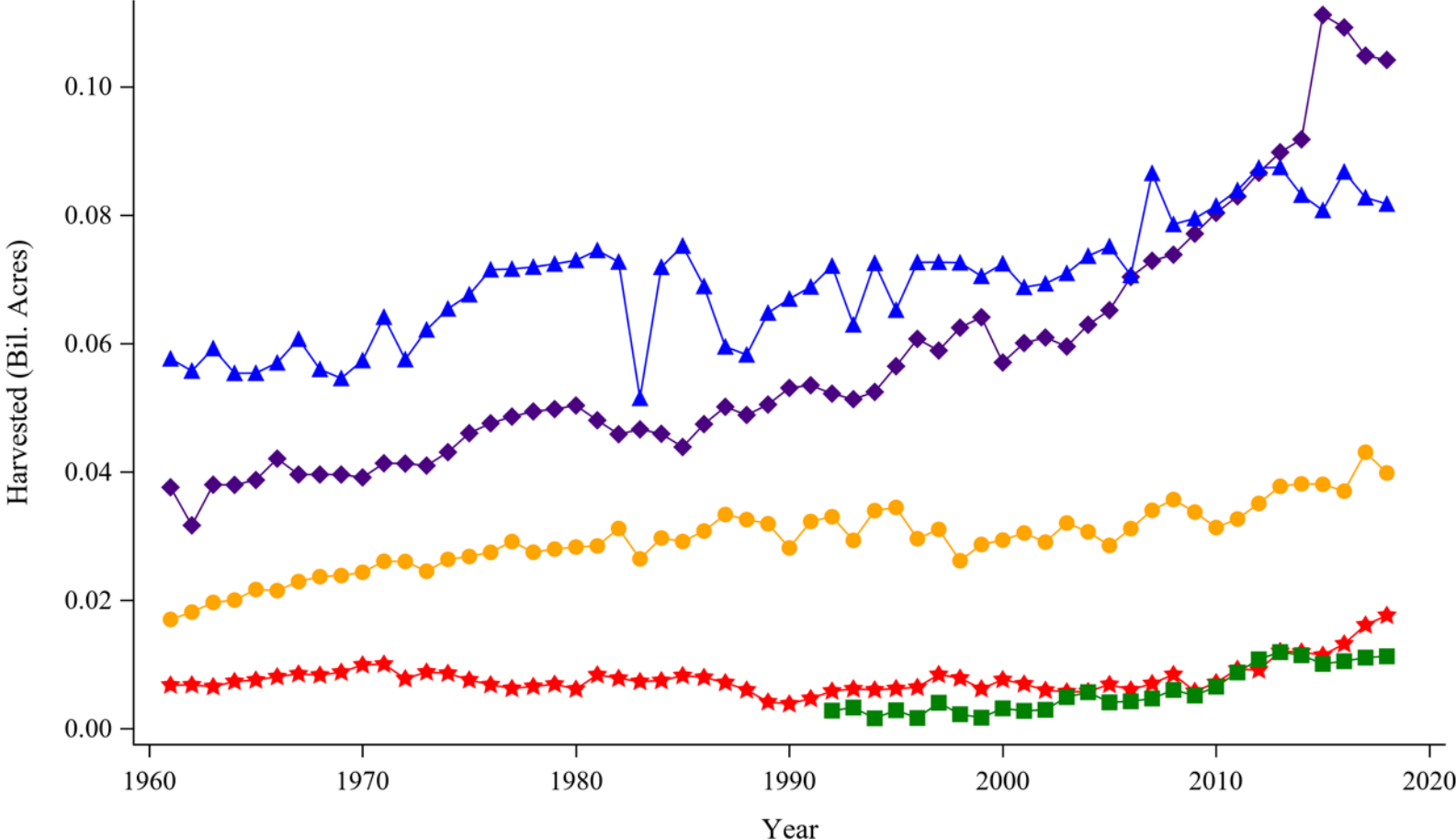


Table 10: Top 15 Countries Harvested Acreage, Descriptive Statistics for 2010 to 2019

| Country | Harvested (Acres) | | | | | Share |
|--------------------------|-------------------|-------------|------------|------------|--------------------------|-------|
| | N | Sum | Mean | Risk | Coefficient of Variation | |
| China | 9 | 860,930,092 | 95,658,899 | 11,780,009 | 12.3 | 20.9 |
| United States of America | 9 | 755,253,971 | 83,917,108 | 2,628,883 | 3.1 | 18.4 |
| Brazil | 9 | 332,936,482 | 36,992,942 | 3,578,238 | 9.7 | 8.09 |
| India | 9 | 201,986,592 | 22,442,955 | 1,076,061 | 4.8 | 4.91 |
| Mexico | 9 | 156,776,360 | 17,419,596 | 1,024,537 | 5.9 | 3.81 |
| Nigeria | 9 | 129,015,080 | 14,335,009 | 2,164,830 | 15.1 | 3.14 |
| Argentina | 9 | 107,963,622 | 11,995,958 | 3,348,657 | 27.9 | 2.62 |
| Indonesia | 9 | 96,513,656 | 10,723,740 | 1,847,903 | 17.2 | 2.35 |
| Ukraine | 9 | 92,411,339 | 10,267,927 | 1,670,294 | 16.3 | 2.25 |
| South Africa | 9 | 56,413,948 | 6,268,216 | 674,324 | 10.8 | 1.37 |
| Romania | 9 | 55,466,444 | 6,162,938 | 436,887 | 7.1 | 1.35 |
| Russian Federation | 9 | 49,450,324 | 5,494,480 | 1,465,187 | 26.7 | 1.20 |
| France | 9 | 35,819,160 | 3,979,907 | 396,638 | 10.0 | 0.87 |
| Canada | 9 | 29,642,222 | 3,293,580 | 262,113 | 8.0 | 0.72 |
| Egypt | 9 | 22,459,149 | 2,495,461 | 162,769 | 6.5 | 0.55 |

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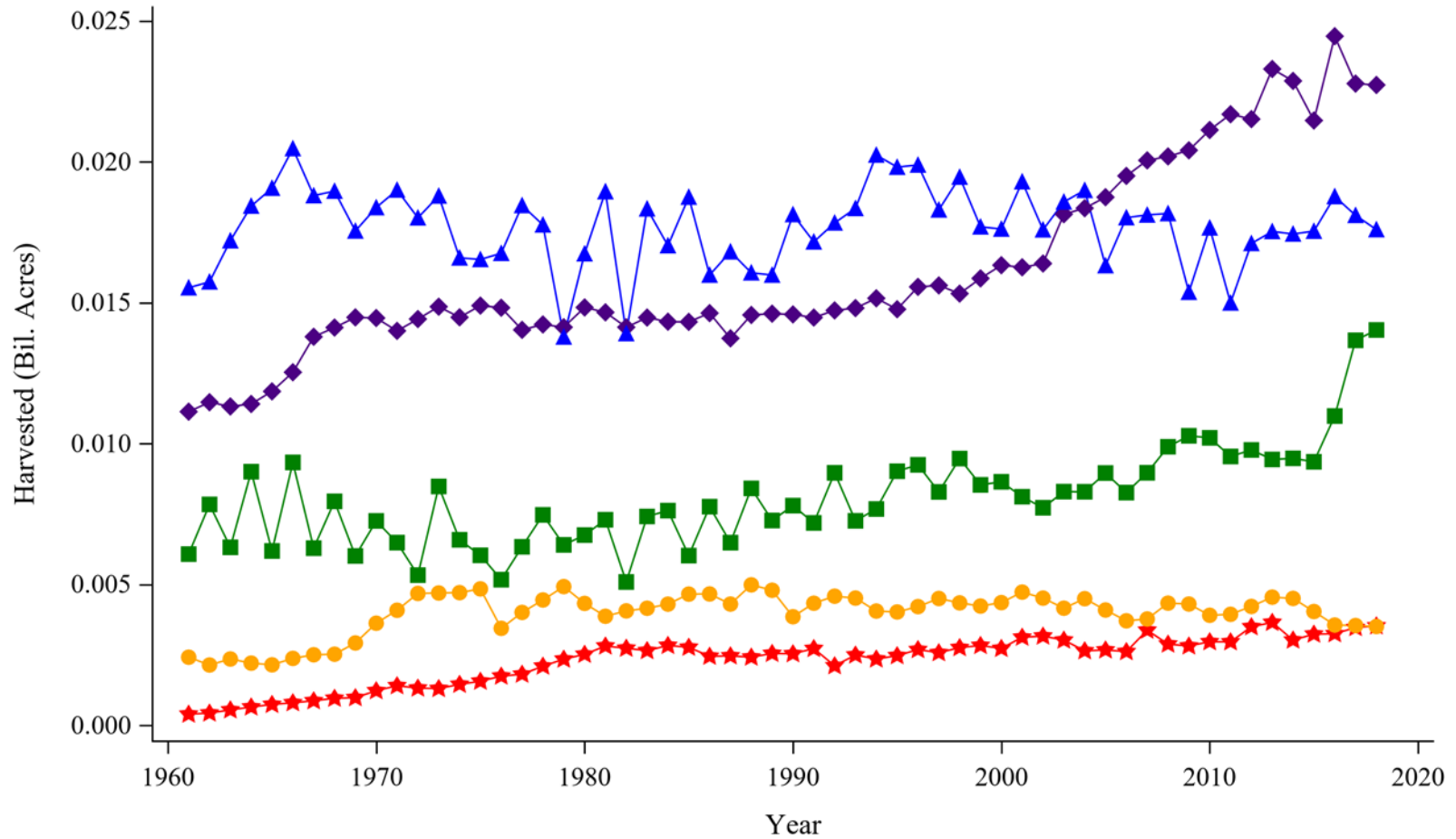
Figure 14: Top 5 Countries Harvested Acreage, Annual Trends



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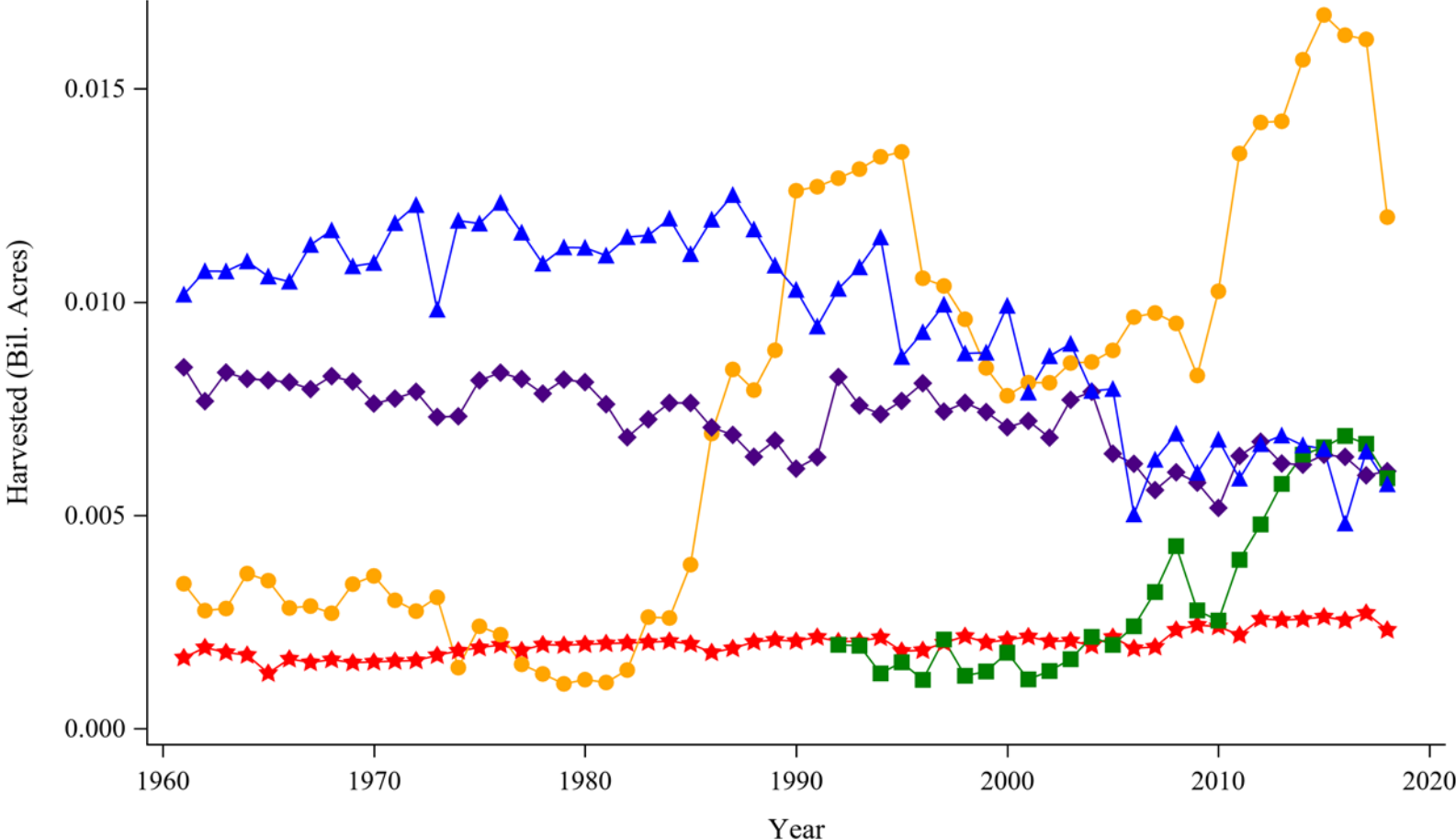
Figure 15: Top 6 to 10 Countries Harvested Acreage, Annual Trends



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Figure 16: Top 11 to 15 Countries Harvested Acreage, Annual Trends



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Table 11: Top 15 Countries Harvested Acreage, Annual Trends

| Country | Harvested (Acres) | | | | | | | | |
|--------------------------|-------------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| United States of America | 81,446,747 | 83,879,768 | 87,365,801 | 87,451,819 | 83,136,772 | 80,749,738 | 86,748,805 | 82,733,769 | 81,740,753 |
| China | 80,353,574 | 82,928,102 | 86,601,567 | 89,796,502 | 91,800,484 | 111,186,743 | 109,241,021 | 104,845,115 | 104,176,985 |
| Brazil | 31,330,134 | 32,664,543 | 35,085,194 | 37,756,784 | 38,135,490 | 38,071,821 | 36,992,859 | 43,063,497 | 39,836,160 |
| Argentina | 7,176,016 | 9,261,095 | 9,133,742 | 12,018,695 | 11,951,616 | 11,433,252 | 13,211,699 | 16,137,620 | 17,639,887 |
| Ukraine | 6,542,352 | 8,756,660 | 10,803,183 | 11,927,511 | 11,433,301 | 10,090,533 | 10,507,399 | 11,072,034 | 11,278,366 |
| India | 21,135,385 | 21,695,819 | 21,522,846 | 23,302,002 | 22,876,981 | 21,473,425 | 24,463,395 | 22,783,081 | 22,733,660 |
| Mexico | 17,663,177 | 14,997,030 | 17,109,303 | 17,533,657 | 17,446,293 | 17,543,773 | 18,775,495 | 18,107,061 | 17,600,573 |
| Indonesia | 10,209,578 | 9,549,847 | 9,779,415 | 9,443,127 | 9,481,466 | 9,358,773 | 10,982,258 | 13,672,737 | 14,036,454 |
| France | 3,910,998 | 3,945,553 | 4,225,337 | 4,555,324 | 4,509,965 | 4,045,309 | 3,565,243 | 3,547,684 | 3,513,747 |
| Canada | 2,972,426 | 2,969,461 | 3,503,702 | 3,658,142 | 3,030,990 | 3,241,276 | 3,256,103 | 3,474,791 | 3,535,331 |
| South Africa | 6,775,619 | 5,862,072 | 6,669,858 | 6,872,484 | 6,642,677 | 6,555,325 | 4,810,517 | 6,495,402 | 5,729,994 |
| Romania | 5,174,994 | 6,392,858 | 6,726,643 | 6,216,028 | 6,188,545 | 6,421,352 | 6,371,659 | 5,938,670 | 6,035,695 |
| Russian Federation | 2,533,274 | 3,960,127 | 4,787,763 | 5,737,432 | 6,423,571 | 6,597,849 | 6,862,153 | 6,677,827 | 5,870,328 |
| Nigeria | 10,253,152 | 13,483,383 | 14,211,750 | 14,239,920 | 15,682,645 | 16,731,947 | 16,258,748 | 16,160,667 | 11,992,868 |
| Egypt | 2,393,259 | 2,195,105 | 2,573,216 | 2,546,019 | 2,568,016 | 2,621,774 | 2,539,454 | 2,709,951 | 2,312,354 |

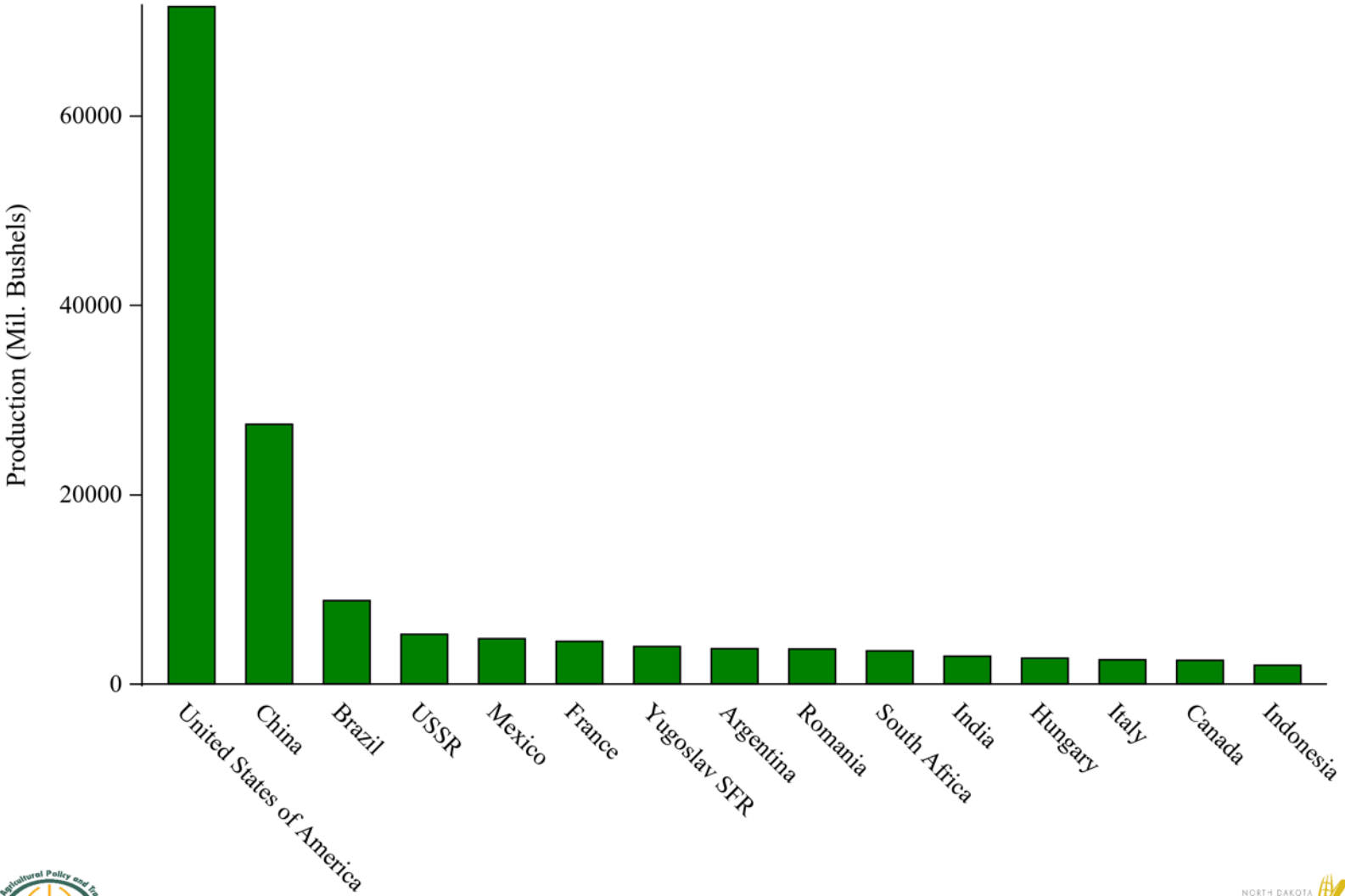
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Table 12: Top 15 Countries Harvested Acreage Share, Annual Trends

| Country | Share(percentages) | | | | | | | | |
|--------------------------|---------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| United States of America | 20.09 | 19.82 | 19.66 | 18.93 | 18.11 | 17.14 | 17.94 | 16.95 | 17.07 |
| China | 19.82 | 19.60 | 19.49 | 19.43 | 20.00 | 23.61 | 22.60 | 21.48 | 21.76 |
| Brazil | 7.73 | 7.72 | 7.90 | 8.17 | 8.31 | 8.08 | 7.65 | 8.82 | 8.32 |
| Argentina | 1.77 | 2.19 | 2.06 | 2.60 | 2.60 | 2.43 | 2.73 | 3.31 | 3.68 |
| Ukraine | 1.61 | 2.07 | 2.43 | 2.58 | 2.49 | 2.14 | 2.17 | 2.27 | 2.36 |
| India | 5.21 | 5.13 | 4.84 | 5.04 | 4.98 | 4.56 | 5.06 | 4.67 | 4.75 |
| Mexico | 4.36 | 3.54 | 3.85 | 3.79 | 3.80 | 3.72 | 3.88 | 3.71 | 3.68 |
| Indonesia | 2.52 | 2.26 | 2.20 | 2.04 | 2.07 | 1.99 | 2.27 | 2.80 | 2.93 |
| France | 0.96 | 0.93 | 0.95 | 0.99 | 0.98 | 0.86 | 0.74 | 0.73 | 0.73 |
| Canada | 0.73 | 0.70 | 0.79 | 0.79 | 0.66 | 0.69 | 0.67 | 0.71 | 0.74 |
| South Africa | 1.67 | 1.39 | 1.50 | 1.49 | 1.45 | 1.39 | 1.00 | 1.33 | 1.20 |
| Romania | 1.28 | 1.51 | 1.51 | 1.35 | 1.35 | 1.36 | 1.32 | 1.22 | 1.26 |
| Russian Federation | 0.62 | 0.94 | 1.08 | 1.24 | 1.40 | 1.40 | 1.42 | 1.37 | 1.23 |
| Nigeria | 2.53 | 3.19 | 3.20 | 3.08 | 3.42 | 3.55 | 3.36 | 3.31 | 2.50 |
| Egypt | 0.59 | 0.52 | 0.58 | 0.55 | 0.56 | 0.56 | 0.53 | 0.56 | 0.48 |

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Figure 17: Top 15 Countries Production, 1980 to 1989



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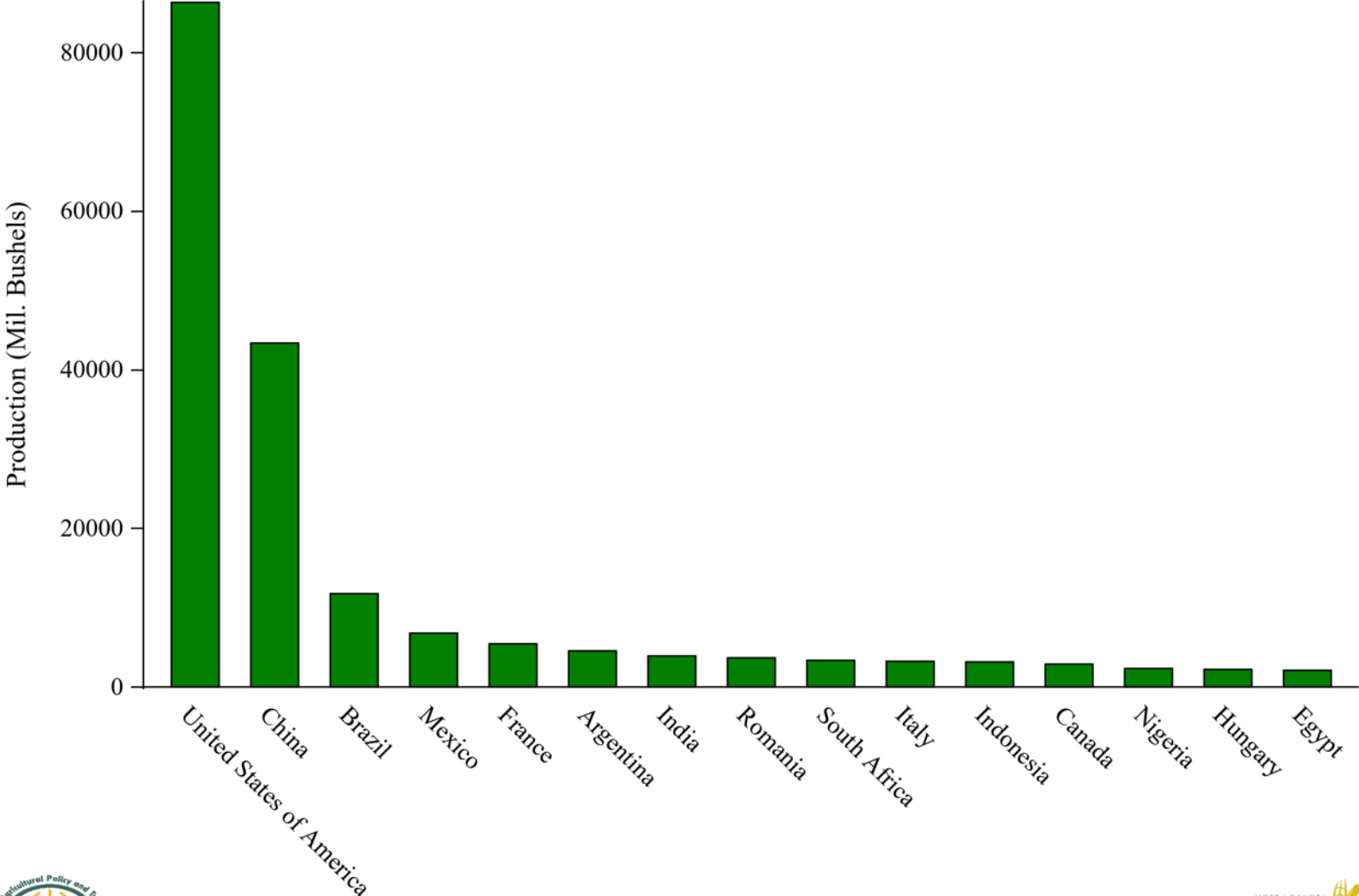


Table 13: Top 15 Countries Production, Descriptive Statistics for 1980 to 1989

| Country | Production (Bushels) | | | | | Share |
|--------------------------|----------------------|----------------|---------------|---------------|--------------------------|-------|
| | N | Sum | Mean | Risk | Coefficient of Variation | |
| United States of America | 10 | 71,532,050,940 | 7,153,205,094 | 1,517,288,589 | 21.2 | 41.4 |
| China | 10 | 27,426,543,219 | 2,742,654,322 | 306,008,431 | 11.2 | 15.9 |
| Brazil | 10 | 8,814,979,741 | 881,497,974 | 107,393,662 | 12.2 | 5.10 |
| USSR | 10 | 5,255,076,848 | 525,507,685 | 90,511,461 | 17.2 | 3.04 |
| Mexico | 10 | 4,788,101,230 | 478,810,123 | 54,206,898 | 11.3 | 2.77 |
| France | 10 | 4,505,821,135 | 450,582,114 | 70,493,391 | 15.6 | 2.61 |
| Yugoslav SFR | 10 | 3,964,209,537 | 396,420,954 | 54,587,458 | 13.8 | 2.29 |
| Argentina | 10 | 3,730,118,000 | 373,011,800 | 97,546,749 | 26.2 | 2.16 |
| Romania | 10 | 3,696,529,222 | 369,652,922 | 70,408,594 | 19.0 | 2.14 |
| South Africa | 10 | 3,502,728,432 | 350,272,843 | 126,554,894 | 36.1 | 2.03 |
| India | 10 | 2,937,018,146 | 293,701,815 | 44,843,871 | 15.3 | 1.70 |
| Hungary | 10 | 2,728,422,664 | 272,842,266 | 19,091,350 | 7.0 | 1.58 |
| Italy | 10 | 2,555,254,839 | 255,525,484 | 14,912,815 | 5.8 | 1.48 |
| Canada | 10 | 2,499,986,104 | 249,998,610 | 22,285,841 | 8.9 | 1.45 |
| Indonesia | 10 | 1,982,562,717 | 198,256,272 | 41,339,702 | 20.9 | 1.15 |

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Figure 18: Top 15 Countries Production, 1990 to 1999



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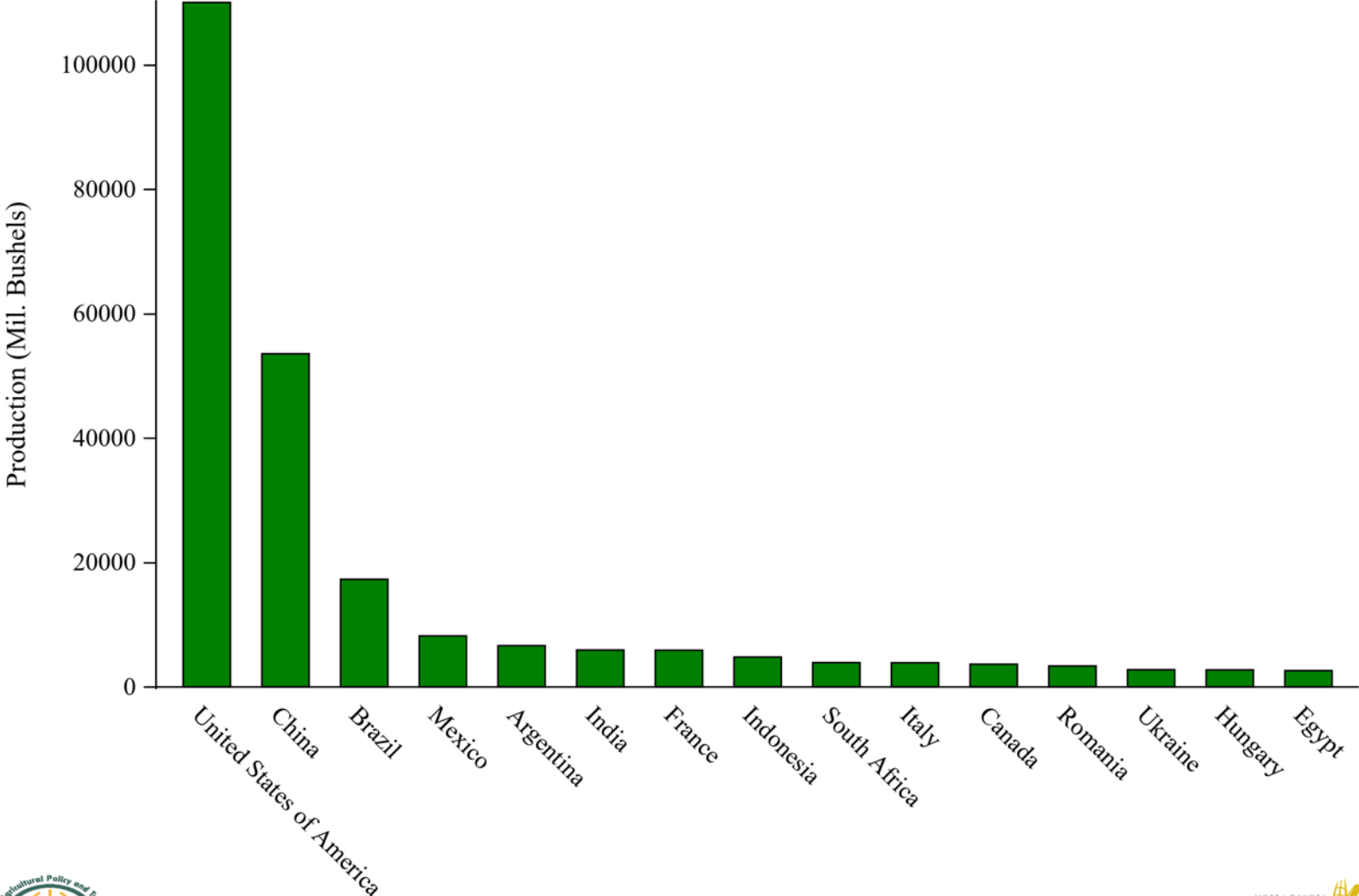


Table 14: Top 15 Countries Production, Descriptive Statistics for 1990 to 1999

| Country | Production (Bushels) | | | | | Share |
|--------------------------|----------------------|----------------|---------------|---------------|--------------------------|-------|
| | N | Sum | Mean | Risk | Coefficient of Variation | |
| United States of America | 10 | 86,301,833,967 | 8,630,183,397 | 1,244,169,267 | 14.4 | 40.1 |
| China | 10 | 43,355,116,634 | 4,335,511,663 | 566,489,996 | 13.1 | 20.1 |
| Brazil | 10 | 11,760,422,836 | 1,176,042,284 | 173,624,614 | 14.8 | 5.46 |
| Mexico | 10 | 6,785,909,362 | 678,590,936 | 60,571,409 | 8.9 | 3.15 |
| France | 10 | 5,442,244,682 | 544,224,468 | 78,791,944 | 14.5 | 2.53 |
| Argentina | 10 | 4,541,894,309 | 454,189,431 | 153,666,850 | 33.8 | 2.11 |
| India | 10 | 3,908,451,103 | 390,845,110 | 44,009,024 | 11.3 | 1.81 |
| Romania | 10 | 3,670,745,033 | 367,074,503 | 72,528,416 | 19.8 | 1.70 |
| South Africa | 10 | 3,352,382,040 | 335,238,204 | 111,679,379 | 33.3 | 1.56 |
| Italy | 10 | 3,230,088,970 | 323,008,897 | 58,130,508 | 18.0 | 1.50 |
| Indonesia | 10 | 3,149,900,999 | 314,990,100 | 53,813,836 | 17.1 | 1.46 |
| Canada | 10 | 2,874,127,766 | 287,412,777 | 47,098,346 | 16.4 | 1.33 |
| Nigeria | 10 | 2,325,270,920 | 232,527,092 | 24,538,602 | 10.6 | 1.08 |
| Hungary | 10 | 2,214,220,130 | 221,422,013 | 51,754,698 | 23.4 | 1.03 |
| Egypt | 10 | 2,091,510,389 | 209,151,039 | 23,044,143 | 11.0 | 0.97 |

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Figure 19: Top 15 Countries Production, 2000 to 2009



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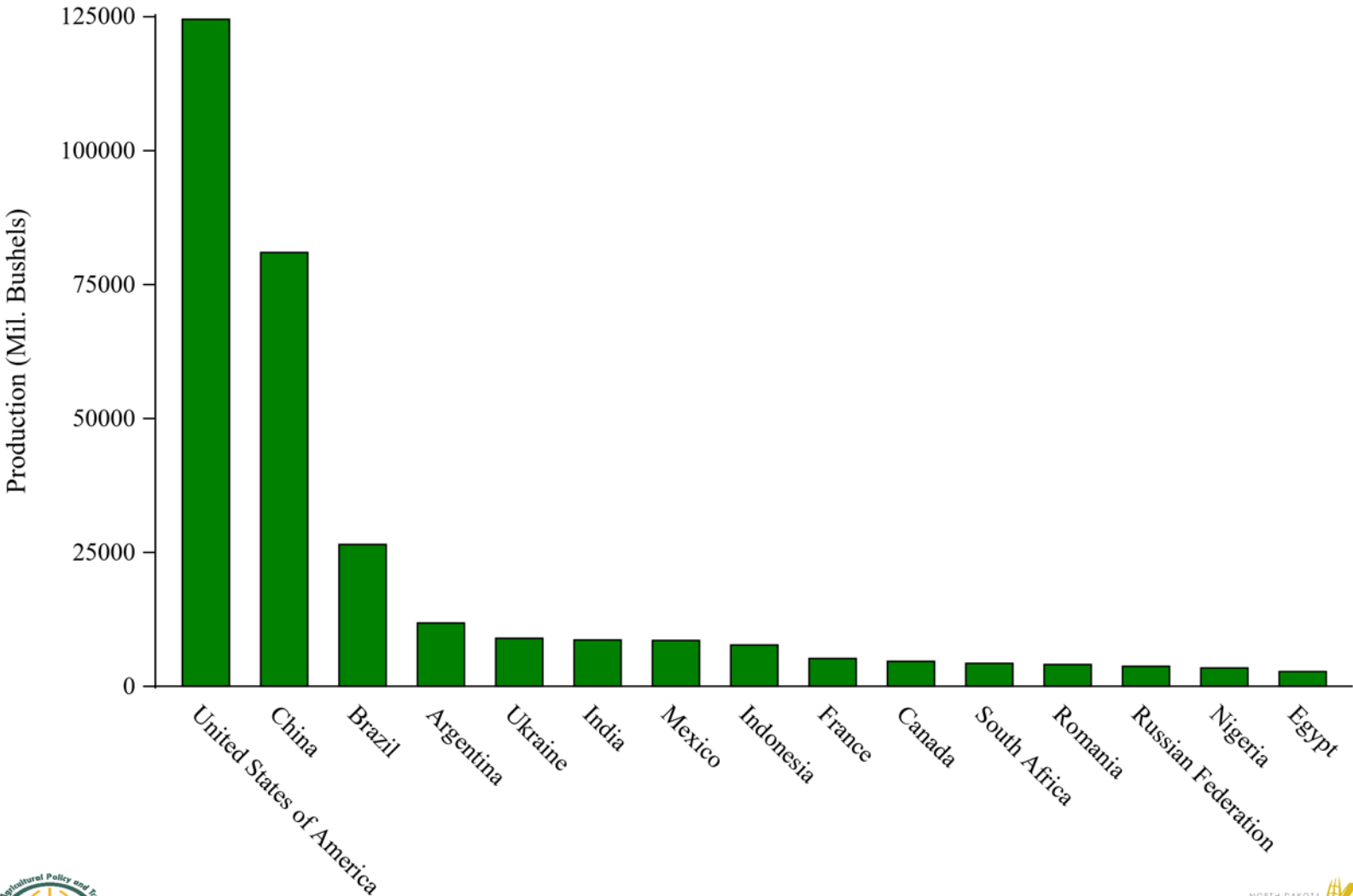


Table 15: Top 15 Countries Production, Descriptive Statistics for 2000 to 2009

| Country | Production (Bushels) | | | | | Share |
|--------------------------|----------------------|-----------------|----------------|---------------|--------------------------|-------|
| | N | Sum | Mean | Risk | Coefficient of Variation | |
| United States of America | 10 | 110,068,093,610 | 11,006,809,361 | 1,444,582,910 | 13.1 | 39.7 |
| China | 10 | 53,573,701,553 | 5,357,370,155 | 856,938,585 | 16.0 | 19.3 |
| Brazil | 10 | 17,317,178,636 | 1,731,717,864 | 332,977,981 | 19.2 | 6.24 |
| Mexico | 10 | 8,210,911,992 | 821,091,199 | 80,321,728 | 9.8 | 2.96 |
| Argentina | 10 | 6,640,171,428 | 664,017,143 | 129,443,306 | 19.5 | 2.39 |
| India | 10 | 5,933,726,053 | 593,372,605 | 108,729,709 | 18.3 | 2.14 |
| France | 10 | 5,902,405,148 | 590,240,515 | 63,461,344 | 10.8 | 2.13 |
| Indonesia | 10 | 4,806,663,833 | 480,666,383 | 111,458,193 | 23.2 | 1.73 |
| South Africa | 10 | 3,906,103,078 | 390,610,308 | 82,186,889 | 21.0 | 1.41 |
| Italy | 10 | 3,881,418,200 | 388,141,820 | 39,545,020 | 10.2 | 1.40 |
| Canada | 10 | 3,656,881,710 | 365,688,171 | 49,227,359 | 13.5 | 1.32 |
| Romania | 10 | 3,369,295,005 | 336,929,501 | 115,214,879 | 34.2 | 1.21 |
| Ukraine | 10 | 2,769,830,123 | 276,983,012 | 105,896,896 | 38.2 | 1.00 |
| Hungary | 10 | 2,740,465,375 | 274,046,537 | 74,216,507 | 27.1 | 0.99 |
| Egypt | 10 | 2,620,167,553 | 262,016,755 | 21,332,480 | 8.1 | 0.94 |

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Figure 20: Top 15 Countries Production, 2010 to 2019



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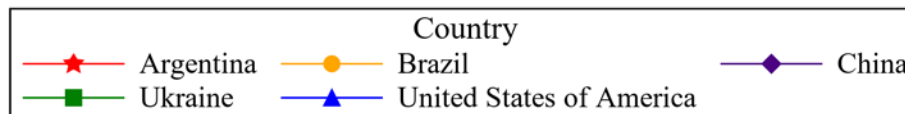
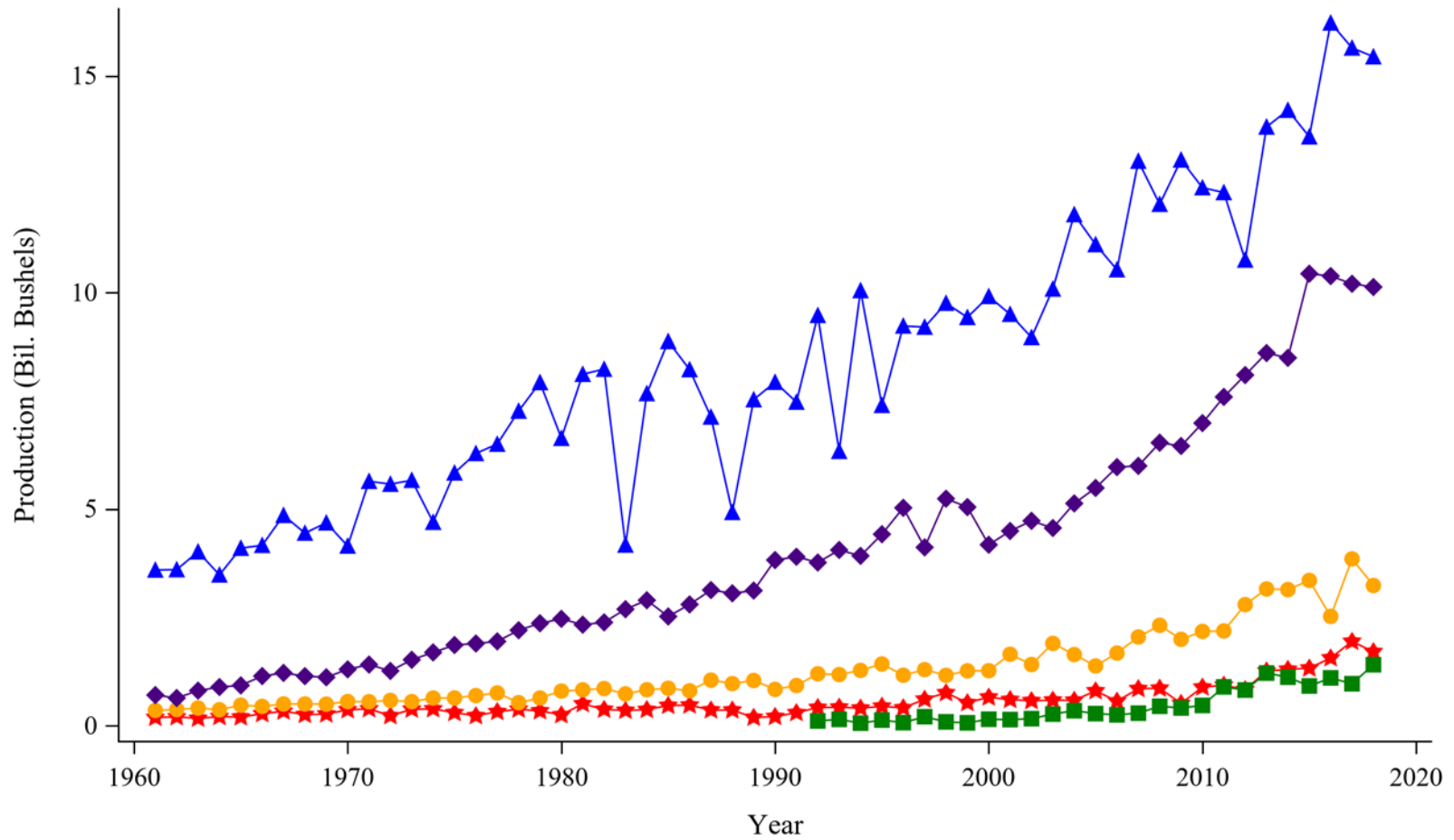


Table 16: Top 15 Countries Production, Descriptive Statistics for 2010 to 2019

| Country | Production (Bushels) | | | | | Share |
|--------------------------|----------------------|-----------------|----------------|---------------|--------------------------|-------|
| | N | Sum | Mean | Risk | Coefficient of Variation | |
| United States of America | 9 | 124,472,343,655 | 13,830,260,406 | 1,790,081,815 | 12.9 | 34.5 |
| China | 9 | 80,946,053,539 | 8,994,005,949 | 1,321,020,715 | 14.7 | 22.4 |
| Brazil | 9 | 26,452,242,854 | 2,939,138,095 | 561,295,570 | 19.1 | 7.33 |
| Argentina | 9 | 11,787,360,035 | 1,309,706,671 | 383,377,546 | 29.3 | 3.27 |
| Ukraine | 9 | 8,939,313,019 | 993,257,002 | 266,782,153 | 26.9 | 2.48 |
| India | 9 | 8,630,068,324 | 958,896,480 | 103,199,873 | 10.8 | 2.39 |
| Mexico | 9 | 8,535,814,876 | 948,423,875 | 131,836,768 | 13.9 | 2.37 |
| Indonesia | 9 | 7,686,483,424 | 854,053,714 | 188,715,610 | 22.1 | 2.13 |
| France | 9 | 5,173,959,714 | 574,884,413 | 75,075,236 | 13.1 | 1.43 |
| Canada | 9 | 4,637,857,470 | 515,317,497 | 44,310,275 | 8.6 | 1.29 |
| South Africa | 9 | 4,268,268,954 | 474,252,106 | 102,226,846 | 21.6 | 1.18 |
| Romania | 9 | 4,045,630,828 | 449,514,536 | 141,321,686 | 31.4 | 1.12 |
| Russian Federation | 9 | 3,712,748,799 | 412,527,644 | 147,893,483 | 35.9 | 1.03 |
| Nigeria | 9 | 3,402,060,559 | 378,006,729 | 48,885,492 | 12.9 | 0.94 |
| Egypt | 9 | 2,735,728,577 | 303,969,842 | 21,351,177 | 7.0 | 0.76 |

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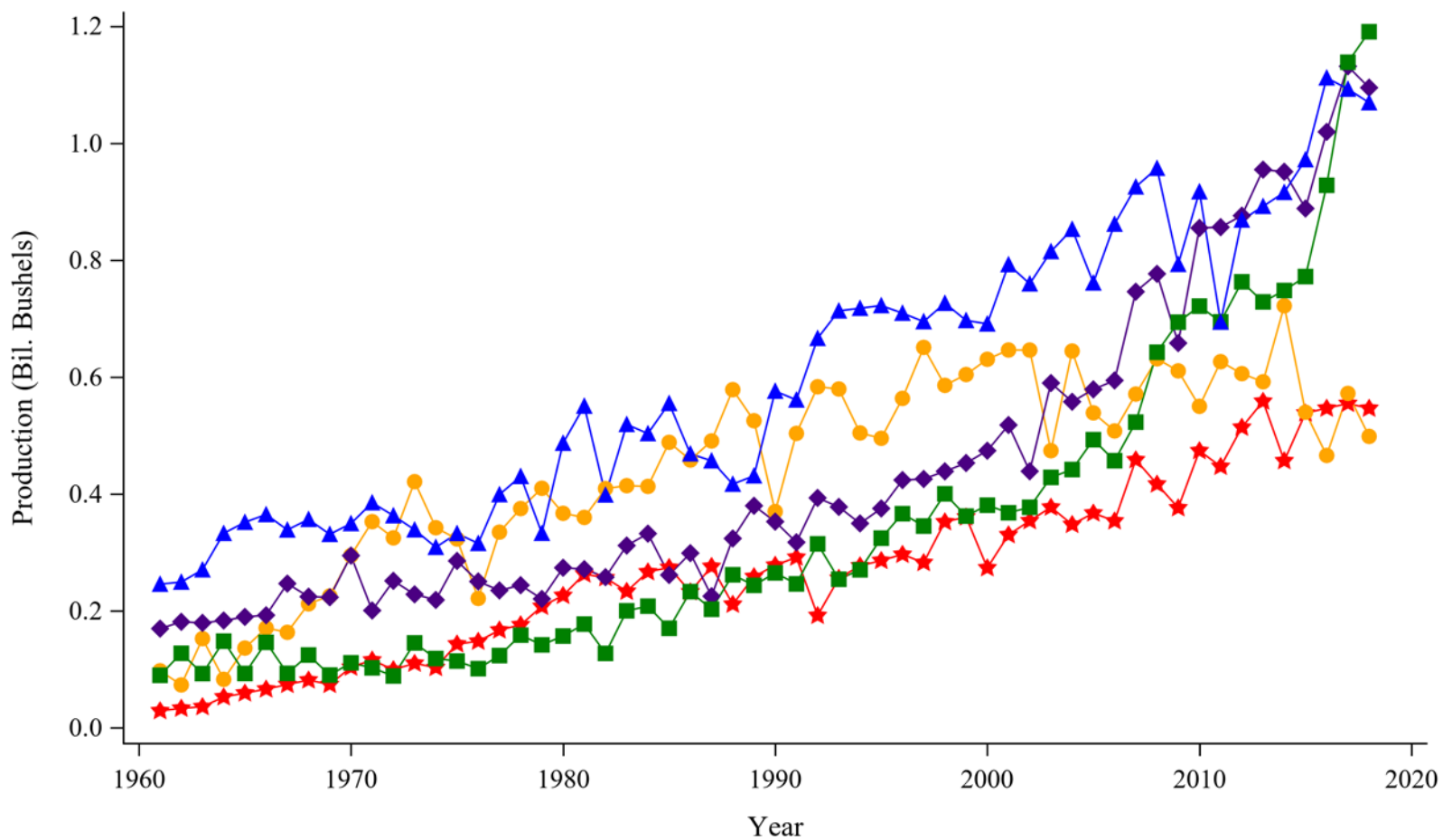
Figure 21: Top 5 Countries Production, Annual Trends



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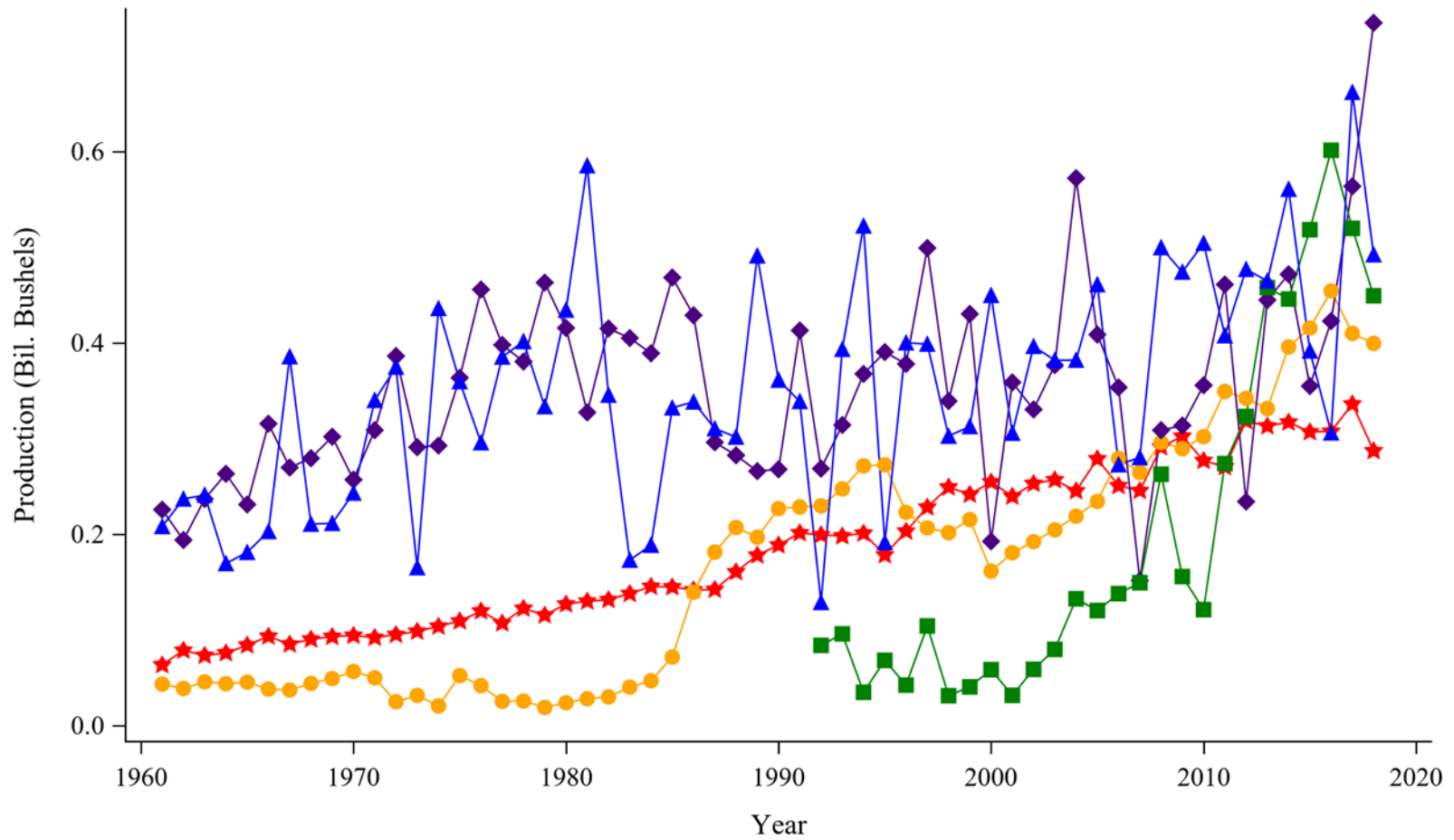
Figure 22: Top 6 to 10 Countries Production, Annual Trends



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Figure 23: Top 11 to 15 Countries Production, Annual Trends



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Table 17: Top 15 Countries Production, Annual Trends

| Country | Production(Bushels) | | | | | | | | |
|--------------------------|---------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| United States of America | 12,425,246,275 | 12,313,873,022 | 10,755,038,403 | 13,828,870,978 | 14,215,436,000 | 13,601,106,233 | 16,229,937,502 | 15,652,830,574 | 15,450,004,669 |
| China | 6,989,425,742 | 7,594,253,805 | 8,098,756,773 | 8,606,707,156 | 8,496,090,753 | 10,438,712,862 | 10,384,402,462 | 10,206,401,979 | 10,131,302,008 |
| Brazil | 2,179,580,621 | 2,191,232,131 | 2,797,994,384 | 3,160,194,235 | 3,144,779,380 | 3,357,424,057 | 2,526,965,546 | 3,854,546,784 | 3,239,525,716 |
| Argentina | 892,200,724 | 936,951,707 | 834,469,205 | 1,264,469,099 | 1,302,575,512 | 1,331,336,946 | 1,566,565,076 | 1,947,767,034 | 1,711,024,732 |
| Ukraine | 470,565,704 | 899,082,447 | 825,204,458 | 1,218,421,884 | 1,121,862,416 | 918,359,776 | 1,105,241,246 | 971,159,350 | 1,409,415,736 |
| India | 855,301,294 | 856,647,680 | 876,331,680 | 955,048,390 | 951,524,560 | 888,535,760 | 1,019,631,200 | 1,131,830,000 | 1,095,217,760 |
| Mexico | 917,348,372 | 694,271,096 | 868,822,391 | 892,234,502 | 916,221,582 | 972,155,203 | 1,112,152,299 | 1,092,981,776 | 1,069,627,655 |
| Indonesia | 721,522,374 | 694,579,466 | 763,228,282 | 728,774,629 | 748,323,715 | 772,102,341 | 928,234,963 | 1,138,680,623 | 1,191,037,031 |
| France | 550,179,020 | 626,507,116 | 606,011,190 | 592,142,985 | 722,139,822 | 539,973,378 | 466,106,451 | 572,209,825 | 498,689,928 |
| Canada | 474,120,634 | 447,169,302 | 514,150,017 | 558,659,478 | 456,920,755 | 538,534,556 | 546,782,152 | 554,903,770 | 546,616,806 |
| South Africa | 504,500,920 | 407,852,480 | 477,165,985 | 464,959,701 | 560,994,000 | 391,908,440 | 306,223,988 | 662,169,760 | 492,493,680 |
| Romania | 355,966,716 | 461,298,122 | 234,371,562 | 445,058,980 | 471,965,355 | 355,154,593 | 423,063,763 | 563,989,787 | 734,761,951 |
| Russian Federation | 121,424,730 | 274,097,259 | 323,326,392 | 458,044,436 | 446,123,609 | 518,606,317 | 601,605,793 | 519,976,284 | 449,543,979 |
| Nigeria | 302,222,231 | 349,527,056 | 342,300,823 | 331,583,673 | 396,001,452 | 415,806,784 | 454,620,877 | 410,214,560 | 399,783,103 |
| Egypt | 277,193,985 | 270,712,989 | 318,630,656 | 313,235,153 | 317,302,379 | 307,195,708 | 307,764,852 | 336,306,455 | 287,386,400 |

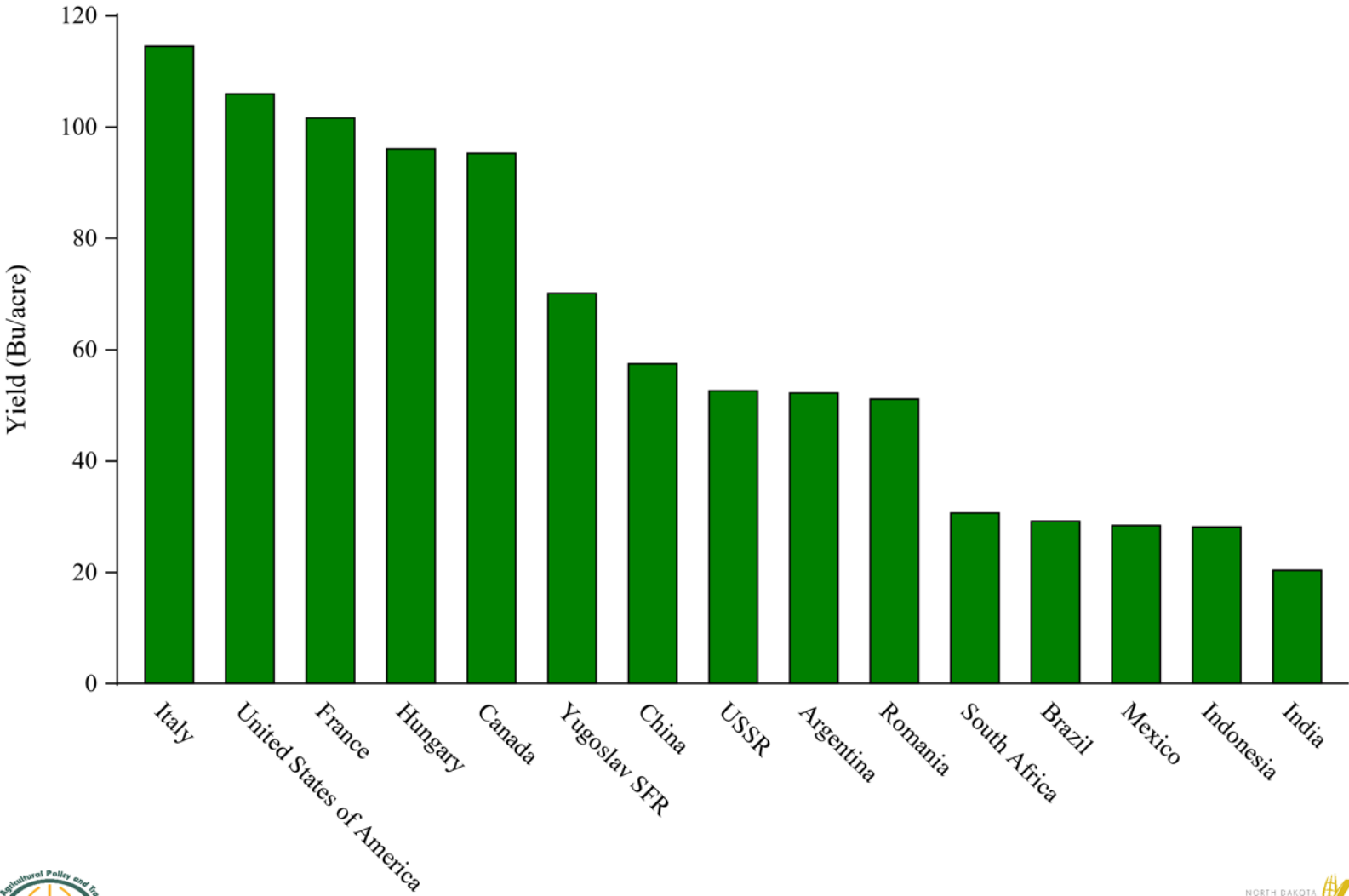
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Table 18: Top 15 Countries Production Share, Annual Trends

| Country | Share(percentages) | | | | | | | | |
|--------------------------|---------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| United States of America | 37.05 | 35.27 | 31.22 | 34.56 | 34.74 | 32.83 | 36.57 | 34.14 | 34.19 |
| China | 20.84 | 21.75 | 23.51 | 21.51 | 20.76 | 25.20 | 23.40 | 22.26 | 22.42 |
| Brazil | 6.50 | 6.28 | 8.12 | 7.90 | 7.69 | 8.10 | 5.69 | 8.41 | 7.17 |
| Argentina | 2.66 | 2.68 | 2.42 | 3.16 | 3.18 | 3.21 | 3.53 | 4.25 | 3.79 |
| Ukraine | 1.40 | 2.58 | 2.40 | 3.05 | 2.74 | 2.22 | 2.49 | 2.12 | 3.12 |
| India | 2.55 | 2.45 | 2.54 | 2.39 | 2.33 | 2.14 | 2.30 | 2.47 | 2.42 |
| Mexico | 2.74 | 1.99 | 2.52 | 2.23 | 2.24 | 2.35 | 2.51 | 2.38 | 2.37 |
| Indonesia | 2.15 | 1.99 | 2.22 | 1.82 | 1.83 | 1.86 | 2.09 | 2.48 | 2.64 |
| France | 1.64 | 1.79 | 1.76 | 1.48 | 1.76 | 1.30 | 1.05 | 1.25 | 1.10 |
| Canada | 1.41 | 1.28 | 1.49 | 1.40 | 1.12 | 1.30 | 1.23 | 1.21 | 1.21 |
| South Africa | 1.50 | 1.17 | 1.38 | 1.16 | 1.37 | 0.95 | 0.69 | 1.44 | 1.09 |
| Romania | 1.06 | 1.32 | 0.68 | 1.11 | 1.15 | 0.86 | 0.95 | 1.23 | 1.63 |
| Russian Federation | 0.36 | 0.79 | 0.94 | 1.14 | 1.09 | 1.25 | 1.36 | 1.13 | 0.99 |
| Nigeria | 0.90 | 1.00 | 0.99 | 0.83 | 0.97 | 1.00 | 1.02 | 0.89 | 0.88 |
| Egypt | 0.83 | 0.78 | 0.92 | 0.78 | 0.78 | 0.74 | 0.69 | 0.73 | 0.64 |

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Figure 24: Top 15 Countries Yield, 1980 to 1989



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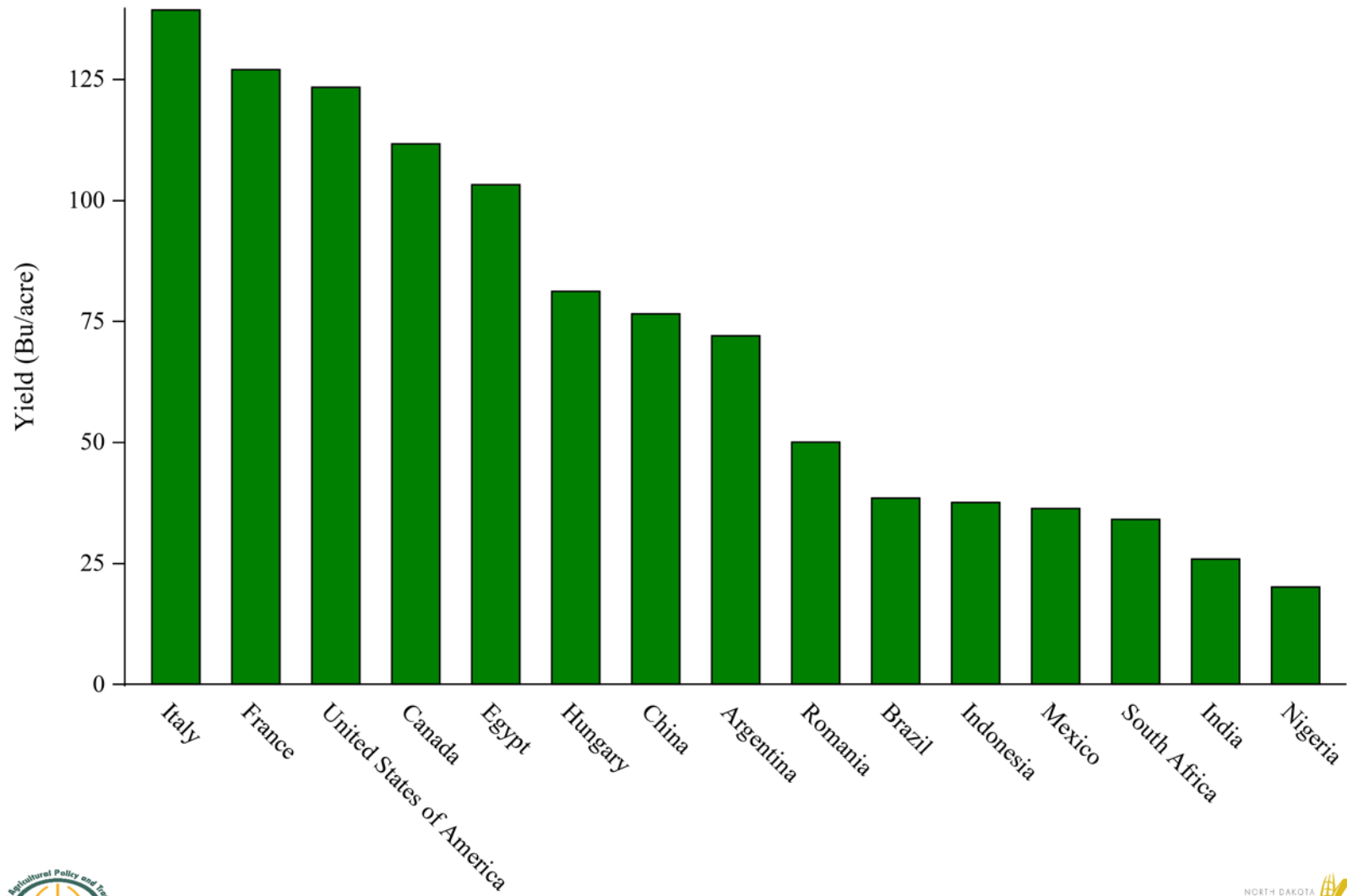


Table 19: Top 15 Countries Yield, Descriptive Statistics for 1980 to 1989

| Country | Yield (Bu/acre) | | | |
|--------------------------|-----------------|---------|--------|--------------------------|
| | N | Mean | Risk | Coefficient of Variation |
| Italy | 10 | 114.516 | 6.445 | 5.6 |
| United States of America | 10 | 105.909 | 14.853 | 14.0 |
| France | 10 | 101.598 | 9.659 | 9.5 |
| Hungary | 10 | 96.050 | 7.447 | 7.8 |
| Canada | 10 | 95.234 | 7.317 | 7.7 |
| Yugoslav SFR | 10 | 70.082 | 8.824 | 12.6 |
| China | 10 | 57.414 | 5.619 | 9.8 |
| USSR | 10 | 52.570 | 5.101 | 9.7 |
| Argentina | 10 | 52.180 | 6.728 | 12.9 |
| Romania | 10 | 51.087 | 8.350 | 16.3 |
| South Africa | 10 | 30.624 | 12.000 | 39.2 |
| Brazil | 10 | 29.136 | 1.959 | 6.7 |
| Mexico | 10 | 28.369 | 1.254 | 4.4 |
| Indonesia | 10 | 28.104 | 3.358 | 11.9 |
| India | 10 | 20.324 | 2.913 | 14.3 |

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Figure 25: Top 15 Countries Yield, 1990 to 1999



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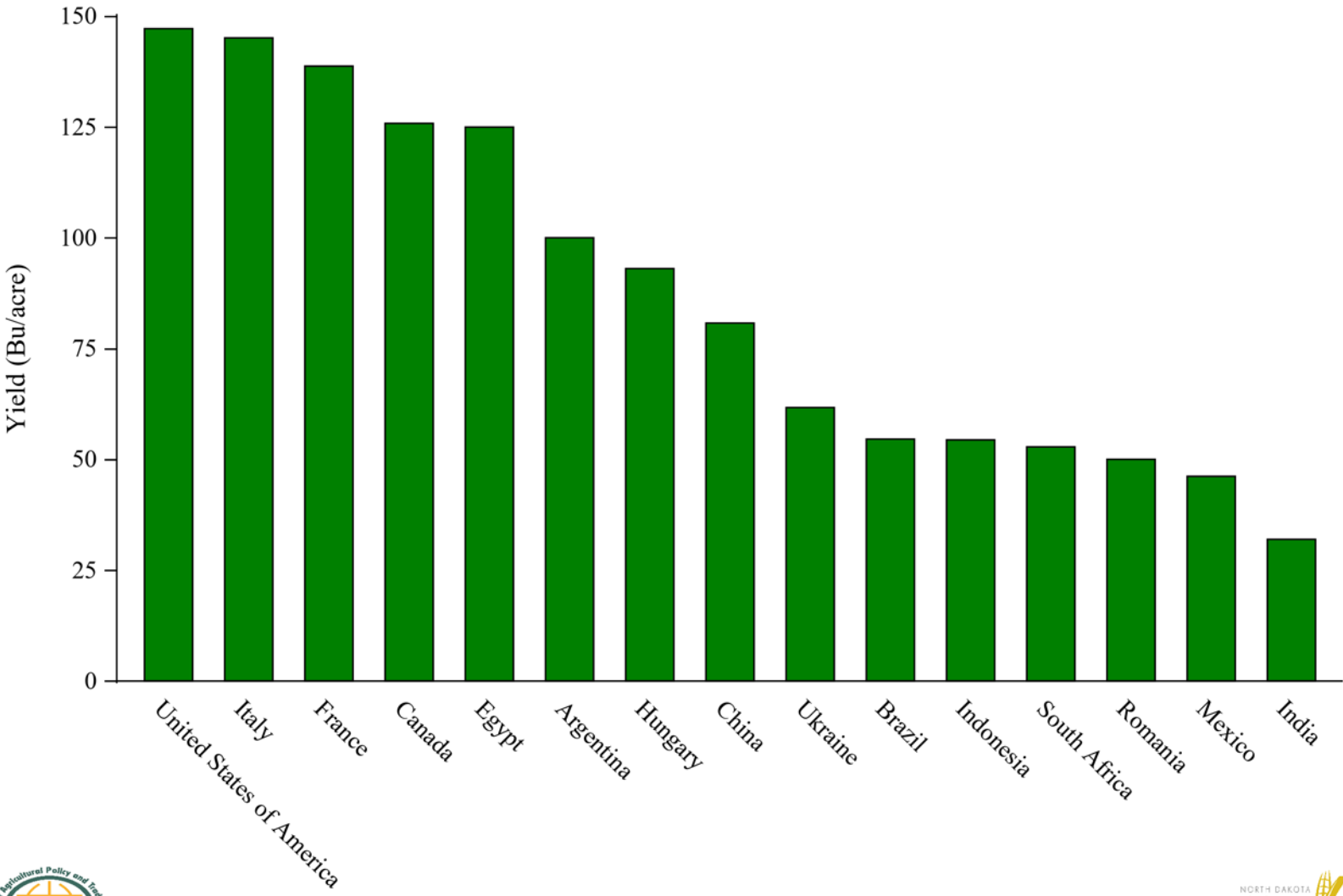


Table 20: Top 15 Countries Yield, Descriptive Statistics for 1990 to 1999

| Country | Yield (Bu/acre) | | | |
|--------------------------|-----------------|---------|--------|--------------------------|
| | N | Mean | Risk | Coefficient of Variation |
| Italy | 10 | 139.306 | 13.241 | 9.5 |
| France | 10 | 126.986 | 13.994 | 11.0 |
| United States of America | 10 | 123.338 | 12.502 | 10.1 |
| Canada | 10 | 111.647 | 11.055 | 9.9 |
| Egypt | 10 | 103.210 | 10.379 | 10.1 |
| Hungary | 10 | 81.172 | 20.385 | 25.1 |
| China | 10 | 76.512 | 4.803 | 6.3 |
| Argentina | 10 | 71.991 | 11.680 | 16.2 |
| Romania | 10 | 50.012 | 10.729 | 21.5 |
| Brazil | 10 | 38.446 | 5.448 | 14.2 |
| Indonesia | 10 | 37.545 | 3.514 | 9.4 |
| Mexico | 10 | 36.296 | 2.491 | 6.9 |
| South Africa | 10 | 34.050 | 9.826 | 28.9 |
| India | 10 | 25.847 | 2.258 | 8.7 |
| Nigeria | 10 | 20.071 | 2.273 | 11.3 |

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Figure 26: Top 15 Countries Yield, 2000 to 2009



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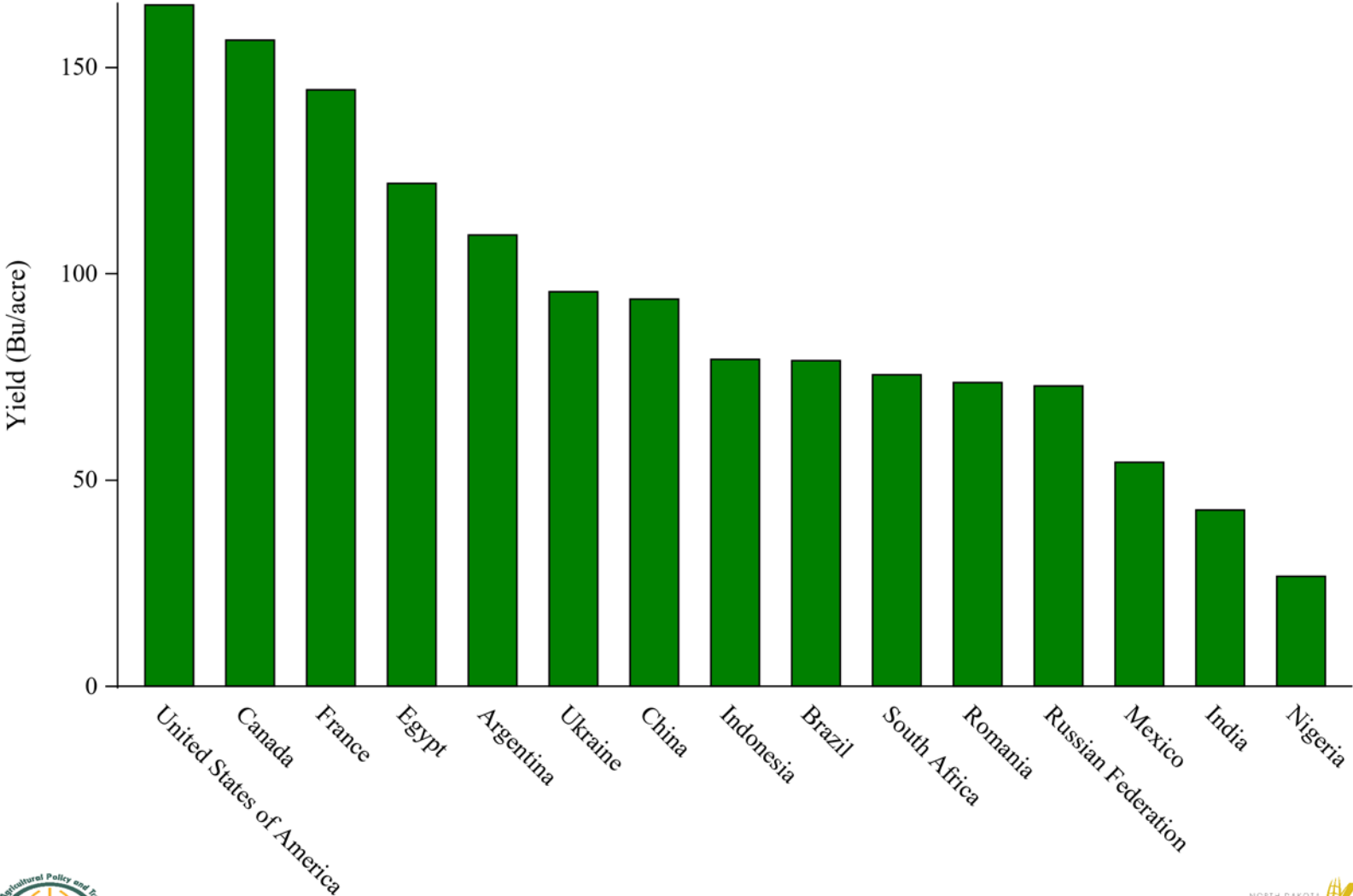


Table 21: Top 15 Countries Yield, Descriptive Statistics for 2000 to 2009

| Country | Yield (Bu/acre) | | | |
|--------------------------|-----------------|---------|--------|--------------------------|
| | N | Mean | Risk | Coefficient of Variation |
| United States of America | 10 | 147.227 | 10.819 | 7.3 |
| Italy | 10 | 145.134 | 10.632 | 7.3 |
| France | 10 | 138.766 | 10.302 | 7.4 |
| Canada | 10 | 125.858 | 14.957 | 11.9 |
| Egypt | 10 | 125.007 | 5.835 | 4.7 |
| Argentina | 10 | 100.040 | 12.157 | 12.2 |
| Hungary | 10 | 93.084 | 23.562 | 25.3 |
| China | 10 | 80.785 | 4.926 | 6.1 |
| Ukraine | 10 | 61.728 | 10.141 | 16.4 |
| Brazil | 10 | 54.602 | 6.554 | 12.0 |
| Indonesia | 10 | 54.421 | 7.668 | 14.1 |
| South Africa | 10 | 52.841 | 13.343 | 25.3 |
| Romania | 10 | 50.029 | 14.137 | 28.3 |
| Mexico | 10 | 46.203 | 4.581 | 9.9 |
| India | 10 | 31.981 | 3.519 | 11.0 |

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Figure 27: Top 15 Countries Yield, 2010 to 2019



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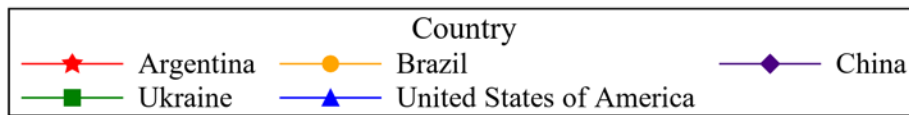
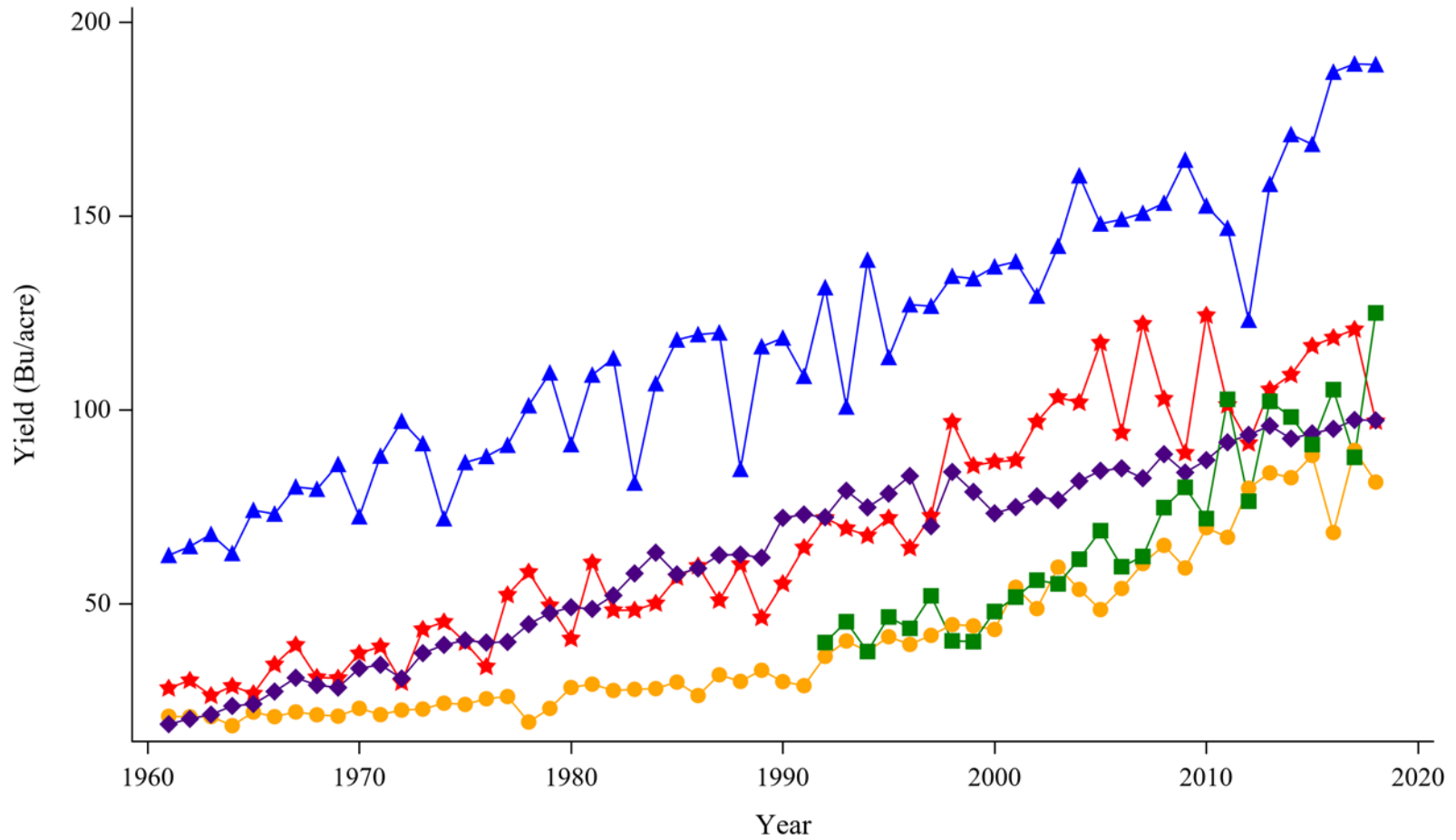


Table 22: Top 15 Countries Yield, Descriptive Statistics for 2010 to 2019

| Country | Yield (Bu/acre) | | | |
|--------------------------|-----------------|---------|--------|--------------------------|
| | N | Mean | Risk | Coefficient of Variation |
| United States of America | 9 | 165.035 | 22.322 | 13.5 |
| Canada | 9 | 156.521 | 7.279 | 4.7 |
| France | 9 | 144.492 | 12.619 | 8.7 |
| Egypt | 9 | 121.812 | 3.163 | 2.6 |
| Argentina | 9 | 109.308 | 11.451 | 10.5 |
| Ukraine | 9 | 95.571 | 16.072 | 16.8 |
| China | 9 | 93.780 | 3.227 | 3.4 |
| Indonesia | 9 | 79.189 | 5.098 | 6.4 |
| Brazil | 9 | 78.876 | 8.514 | 10.8 |
| South Africa | 9 | 75.446 | 13.178 | 17.5 |
| Romania | 9 | 73.562 | 24.235 | 32.9 |
| Russian Federation | 9 | 72.742 | 11.261 | 15.5 |
| Mexico | 9 | 54.244 | 5.014 | 9.2 |
| India | 9 | 42.684 | 3.621 | 8.5 |
| Nigeria | 9 | 26.617 | 3.155 | 11.9 |

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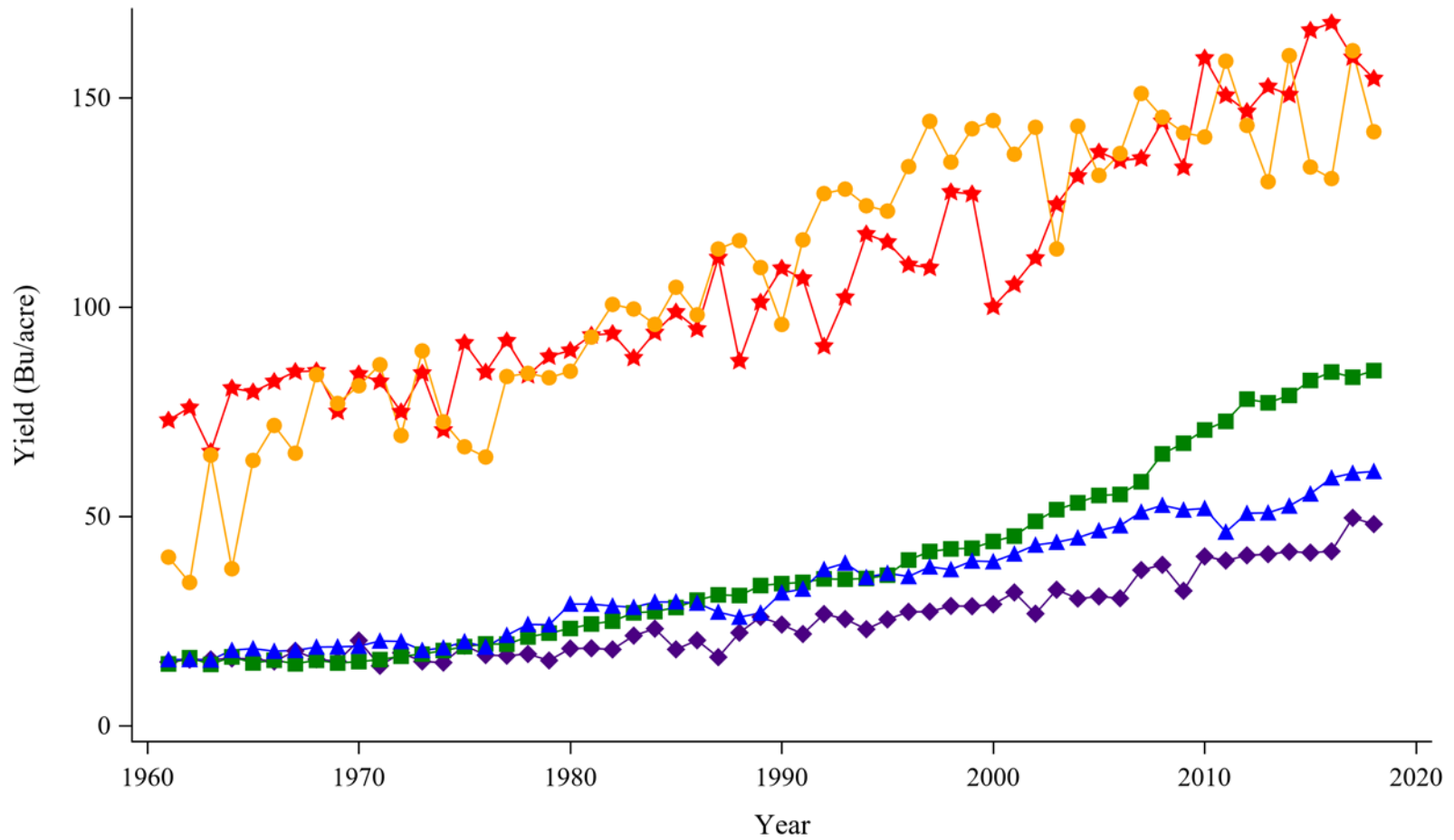
Figure 28: Top 5 Countries Yield, Annual Trends



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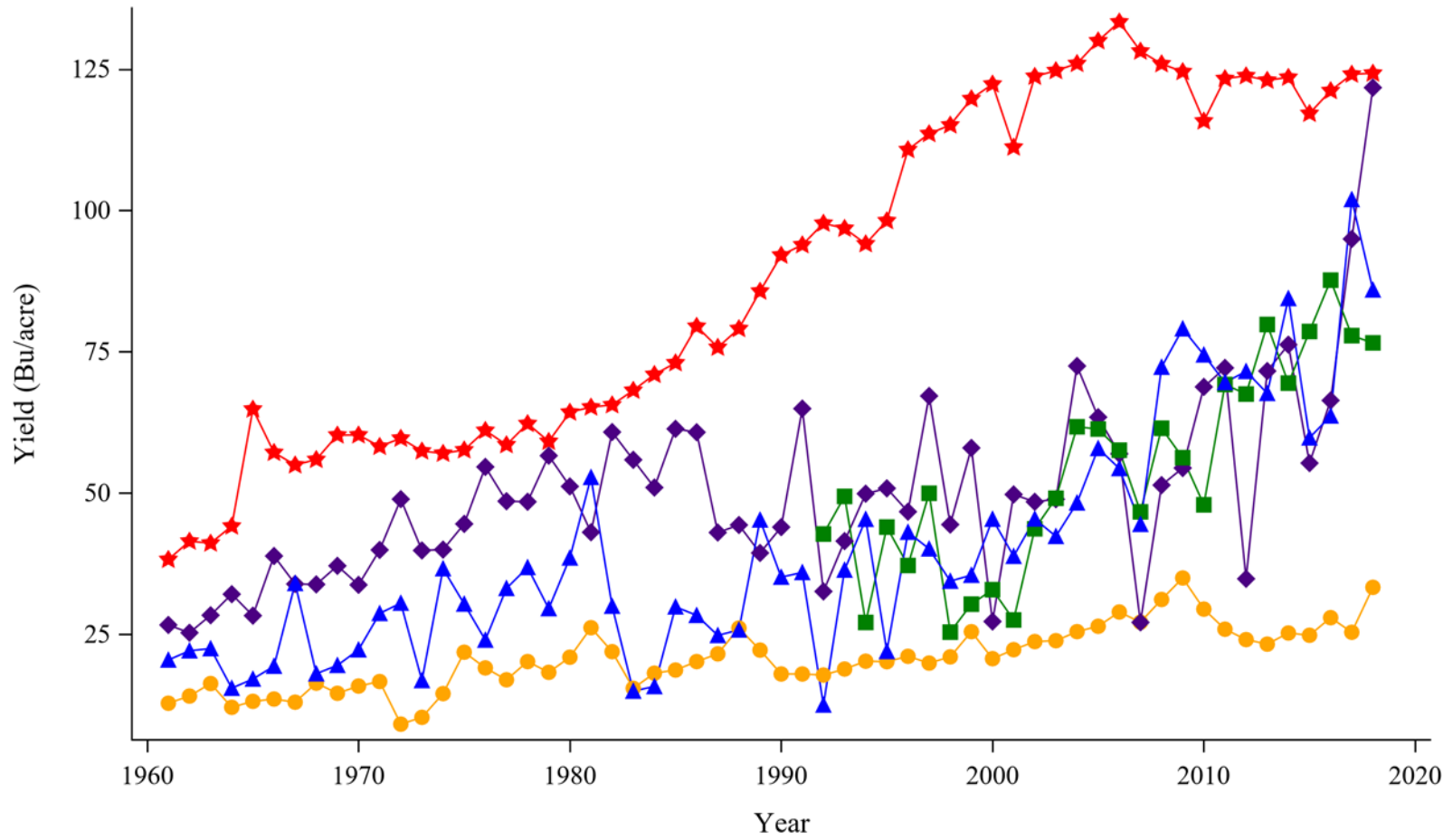
Figure 29: Top 6 to 10 Countries Yield, Annual Trends



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Figure 30: Top 11 to 15 Countries Yield, Annual Trends



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Table 23: Top 15 Countries Yield, Annual Trends

| Country | Yield (Bu acre) | | | | | | | | |
|--------------------------|--------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| United States of America | 152.56 | 146.80 | 123.10 | 158.13 | 170.99 | 168.44 | 187.09 | 189.20 | 189.01 |
| China | 86.98 | 91.58 | 93.52 | 95.85 | 92.55 | 93.88 | 95.06 | 97.35 | 97.25 |
| Brazil | 69.57 | 67.08 | 79.75 | 83.70 | 82.46 | 88.19 | 68.31 | 89.51 | 81.32 |
| Argentina | 124.33 | 101.17 | 91.36 | 105.21 | 108.99 | 116.44 | 118.57 | 120.70 | 97.00 |
| Ukraine | 71.93 | 102.67 | 76.39 | 102.15 | 98.12 | 91.01 | 105.19 | 87.71 | 124.97 |
| India | 40.47 | 39.48 | 40.72 | 40.99 | 41.59 | 41.38 | 41.68 | 49.68 | 48.18 |
| Mexico | 51.94 | 46.29 | 50.78 | 50.89 | 52.52 | 55.41 | 59.23 | 60.36 | 60.77 |
| Indonesia | 70.67 | 72.73 | 78.04 | 77.18 | 78.92 | 82.50 | 84.52 | 83.28 | 84.85 |
| France | 140.67 | 158.79 | 143.42 | 129.99 | 160.12 | 133.48 | 130.74 | 161.29 | 141.93 |
| Canada | 159.51 | 150.59 | 146.74 | 152.72 | 150.75 | 166.15 | 167.93 | 159.69 | 154.62 |
| South Africa | 74.46 | 69.57 | 71.54 | 67.66 | 84.45 | 59.78 | 63.66 | 101.94 | 85.95 |
| Romania | 68.79 | 72.16 | 34.84 | 71.60 | 76.26 | 55.31 | 66.40 | 94.97 | 121.74 |
| Russian Federation | 47.93 | 69.21 | 67.53 | 79.83 | 69.45 | 78.60 | 87.67 | 77.87 | 76.58 |
| Nigeria | 29.48 | 25.92 | 24.09 | 23.29 | 25.25 | 24.85 | 27.96 | 25.38 | 33.34 |
| Egypt | 115.82 | 123.33 | 123.83 | 123.03 | 123.56 | 117.17 | 121.19 | 124.10 | 124.28 |

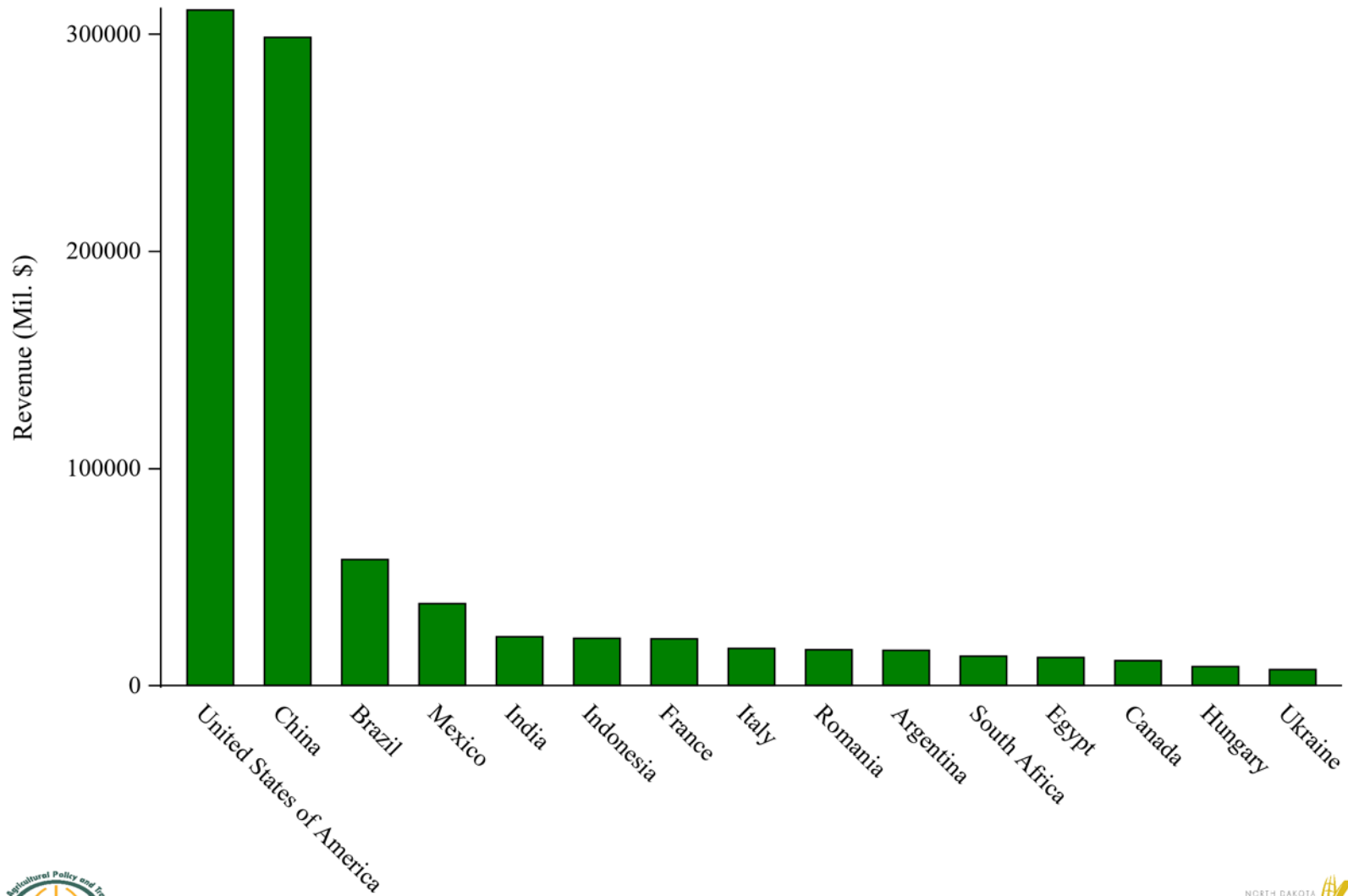
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Table 24: Top 15 Countries Revenue, Descriptive Statistics for 1990 to 1999

| Country | Revenue (\$) | | | | | Share |
|--------------------------|--------------|-----------------|----------------|---------------|--------------------------|-------|
| | N | Sum | Mean | Risk | Coefficient of Variation | |
| United States of America | 9 | 191,083,959,850 | 21,231,551,094 | 5,165,012,318 | 24.3 | 21.7 |
| China | 9 | 150,453,800,470 | 16,717,088,941 | 8,734,350,134 | 52.2 | 17.1 |
| Brazil | 9 | 31,310,683,575 | 3,478,964,842 | 725,698,588 | 20.9 | 3.56 |
| Mexico | 9 | 30,671,348,575 | 3,407,927,619 | 580,751,358 | 17.0 | 3.49 |
| France | 9 | 20,436,426,299 | 2,270,714,033 | 389,093,418 | 17.1 | 2.32 |
| Italy | 9 | 16,100,678,033 | 1,788,964,226 | 242,591,266 | 13.6 | 1.83 |
| Nigeria | 9 | 13,902,318,249 | 1,544,702,028 | 379,593,313 | 24.6 | 1.58 |
| Argentina | 9 | 11,358,328,488 | 1,262,036,499 | 413,864,430 | 32.8 | 1.29 |
| Indonesia | 9 | 10,748,590,159 | 1,194,287,795 | 362,276,451 | 30.3 | 1.22 |
| India | 9 | 10,629,742,659 | 1,181,082,518 | 99,951,411 | 8.5 | 1.21 |
| South Africa | 9 | 9,405,802,946 | 1,045,089,216 | 312,697,990 | 29.9 | 1.07 |
| Romania | 7 | 8,750,275,218 | 1,250,039,317 | 293,900,935 | 23.5 | 0.99 |
| Egypt | 9 | 7,422,274,032 | 824,697,115 | 172,828,459 | 21.0 | 0.84 |
| Canada | 9 | 7,130,262,893 | 792,251,433 | 225,505,454 | 28.5 | 0.81 |
| Hungary | 9 | 4,713,983,191 | 523,775,910 | 132,093,351 | 25.2 | 0.54 |

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Figure 31: Top 15 Countries Revenue, 2000 to 2009



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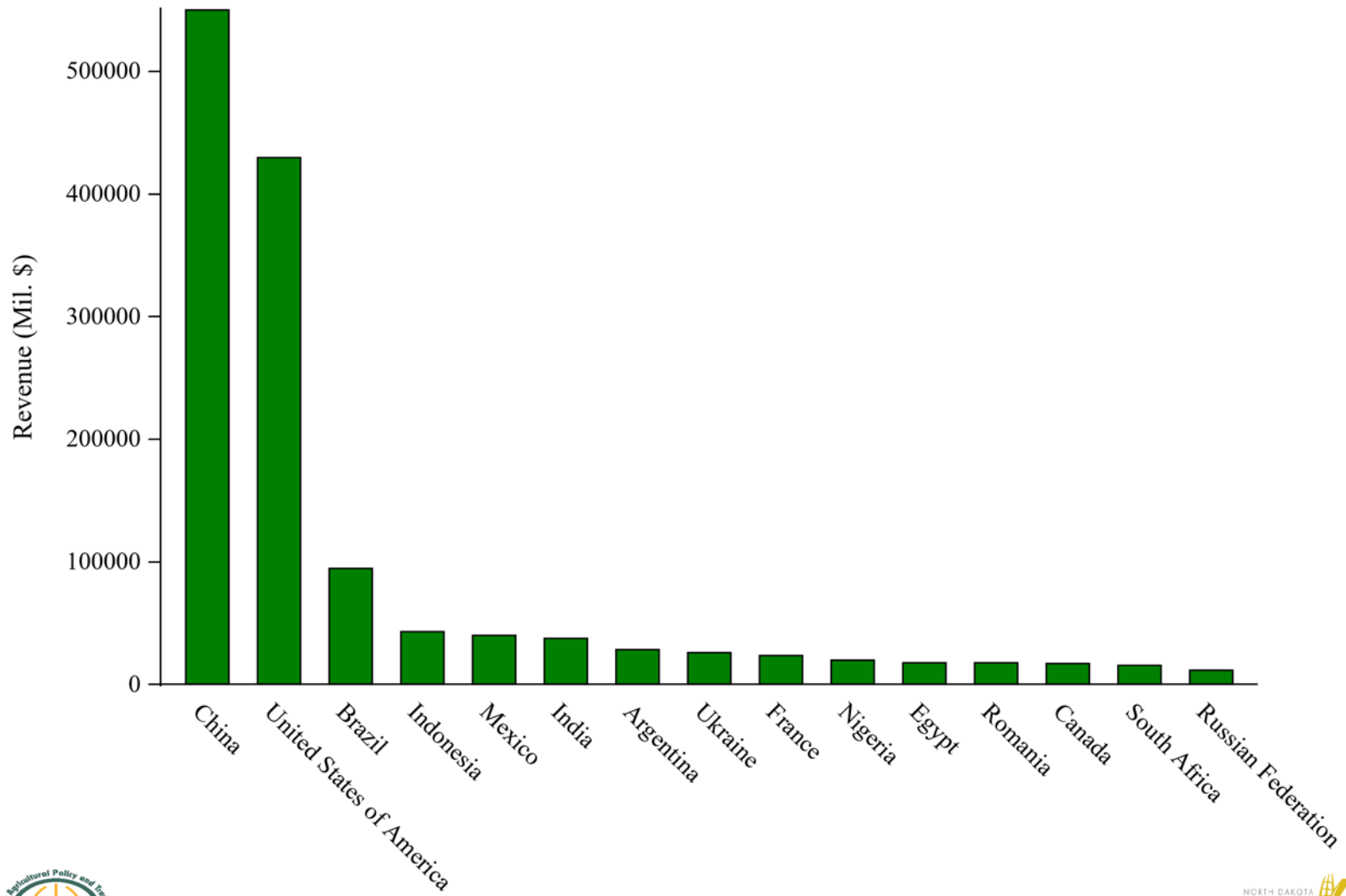


Table 25: Top 15 Countries Revenue, Descriptive Statistics for 2000 to 2009

| Country | Revenue (\$) | | | | | Share |
|--------------------------|--------------|-----------------|----------------|----------------|--------------------------|-------|
| | N | Sum | Mean | Risk | Coefficient of Variation | |
| United States of America | 10 | 311,029,291,200 | 31,102,929,120 | 13,741,289,380 | 44.2 | 29.3 |
| China | 10 | 298,428,374,245 | 29,842,837,425 | 9,185,829,726 | 30.8 | 28.1 |
| Brazil | 10 | 57,989,386,897 | 5,798,938,690 | 3,140,972,854 | 54.2 | 5.46 |
| Mexico | 10 | 37,680,482,661 | 3,768,048,266 | 1,143,093,302 | 30.3 | 3.55 |
| India | 10 | 22,441,421,232 | 2,244,142,123 | 1,002,387,973 | 44.7 | 2.11 |
| Indonesia | 10 | 21,701,004,128 | 2,170,100,413 | 1,259,820,723 | 58.1 | 2.04 |
| France | 10 | 21,470,471,990 | 2,147,047,199 | 724,250,504 | 33.7 | 2.02 |
| Italy | 10 | 17,055,666,999 | 1,705,566,700 | 488,680,476 | 28.7 | 1.61 |
| Romania | 10 | 16,464,086,560 | 1,646,408,656 | 776,970,055 | 47.2 | 1.55 |
| Argentina | 10 | 16,178,176,221 | 1,617,817,622 | 663,645,001 | 41.0 | 1.52 |
| South Africa | 10 | 13,506,851,164 | 1,350,685,116 | 519,758,406 | 38.5 | 1.27 |
| Egypt | 10 | 12,874,386,647 | 1,287,438,665 | 431,328,138 | 33.5 | 1.21 |
| Canada | 10 | 11,453,305,102 | 1,145,330,510 | 439,965,158 | 38.4 | 1.08 |
| Hungary | 10 | 8,714,815,957 | 871,481,596 | 343,626,567 | 39.4 | 0.82 |
| Ukraine | 10 | 7,311,526,694 | 731,152,669 | 444,423,166 | 60.8 | 0.69 |

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Figure 32: Top 15 Countries Revenue, 2010 to 2019



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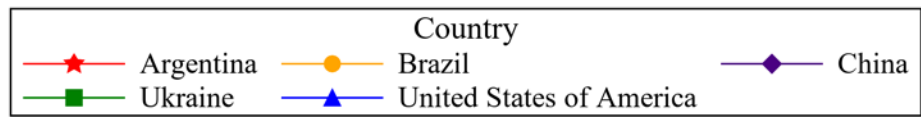
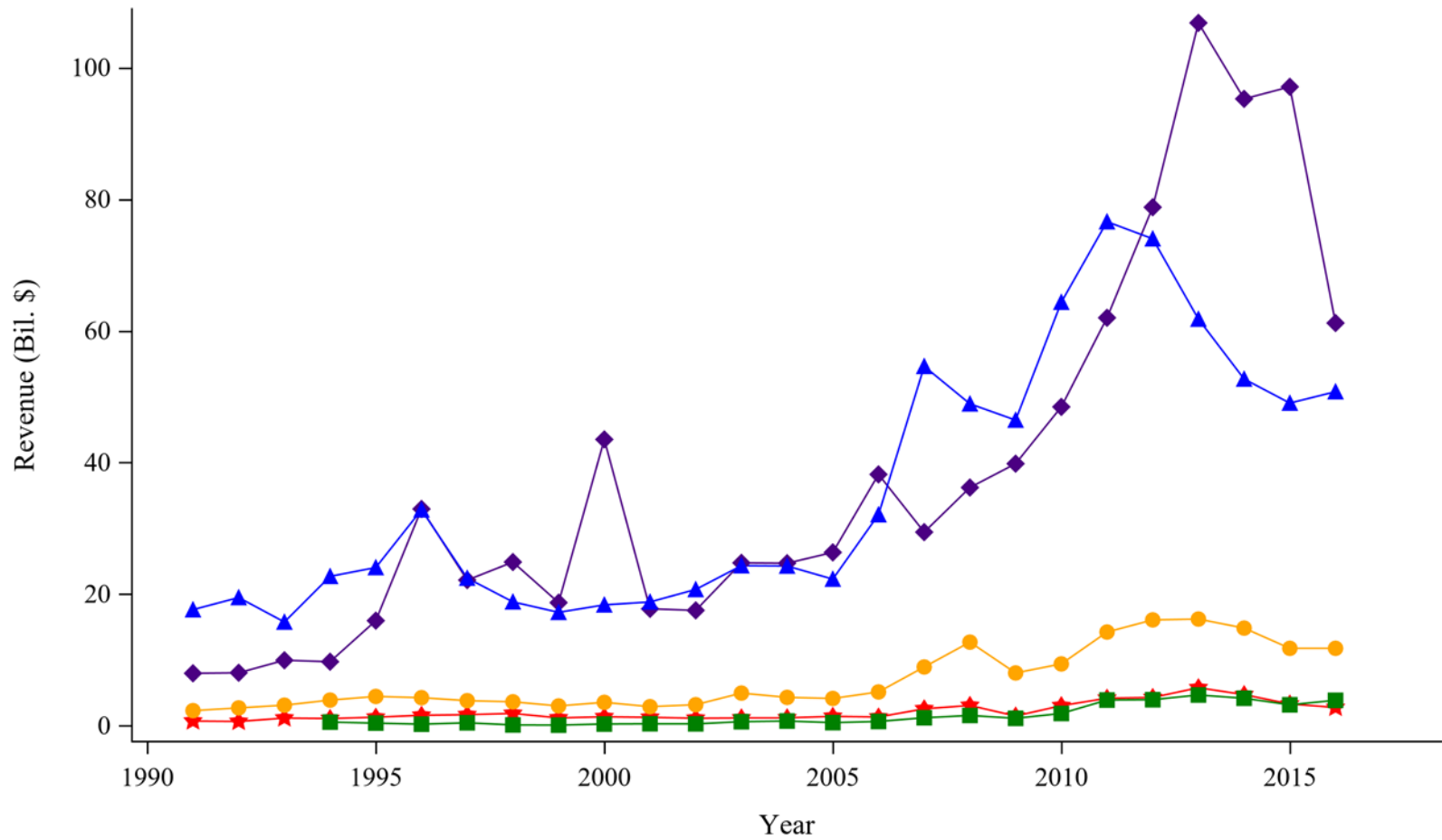


Table 26: Top 15 Countries Revenue, Descriptive Statistics for 2010 to 2019

| Country | Revenue (\$) | | | | | Share |
|--------------------------|--------------|-----------------|----------------|----------------|--------------------------|-------|
| | N | Sum | Mean | Risk | Coefficient of Variation | |
| China | 7 | 549,855,287,386 | 78,550,755,341 | 22,001,204,448 | 28.0 | 33.9 |
| United States of America | 7 | 429,447,371,450 | 61,349,624,493 | 11,112,971,543 | 18.1 | 26.5 |
| Brazil | 7 | 94,402,354,912 | 13,486,050,702 | 2,557,773,517 | 19.0 | 5.82 |
| Indonesia | 7 | 42,841,981,850 | 6,120,283,121 | 405,133,057 | 6.6 | 2.64 |
| Mexico | 7 | 39,807,062,717 | 5,686,723,245 | 531,831,874 | 9.4 | 2.45 |
| India | 7 | 37,370,812,205 | 5,338,687,458 | 275,868,646 | 5.2 | 2.30 |
| Argentina | 7 | 28,201,611,066 | 4,028,801,581 | 1,055,855,217 | 26.2 | 1.74 |
| Ukraine | 7 | 25,706,438,273 | 3,672,348,325 | 906,790,332 | 24.7 | 1.58 |
| France | 7 | 23,336,113,185 | 3,333,730,455 | 804,680,264 | 24.1 | 1.44 |
| Nigeria | 7 | 19,559,576,994 | 2,794,225,285 | 601,182,089 | 21.5 | 1.21 |
| Egypt | 7 | 17,433,683,027 | 2,490,526,147 | 301,005,528 | 12.1 | 1.07 |
| Romania | 7 | 17,427,783,957 | 2,489,683,422 | 848,853,547 | 34.1 | 1.07 |
| Canada | 7 | 16,845,516,557 | 2,406,502,365 | 646,528,097 | 26.9 | 1.04 |
| South Africa | 7 | 15,341,144,347 | 2,191,592,050 | 454,825,425 | 20.8 | 0.95 |
| Russian Federation | 7 | 11,396,221,598 | 1,628,031,657 | 591,790,140 | 36.4 | 0.70 |

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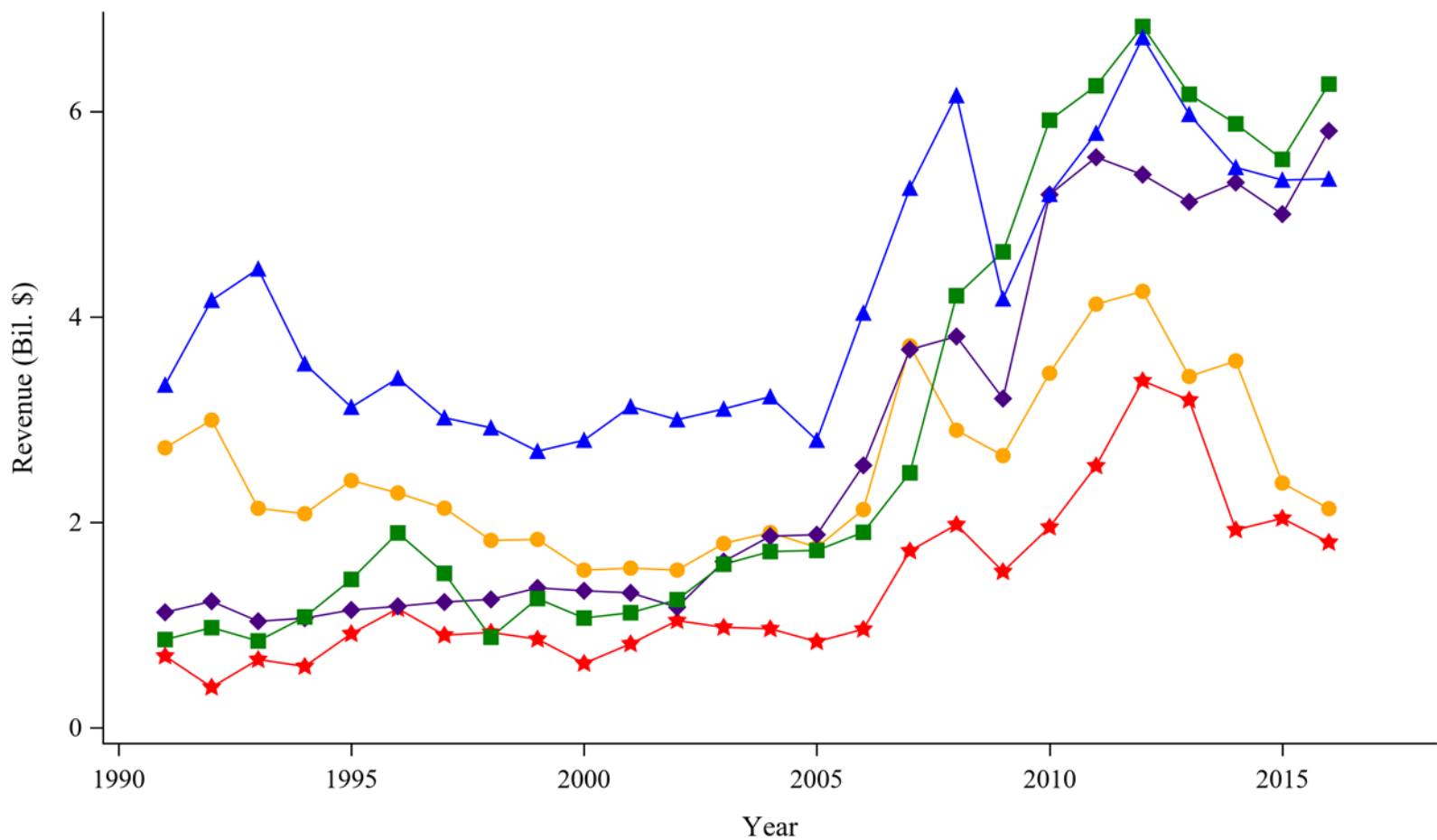
Figure 33: Top 5 Countries Revenue, Annual Trends



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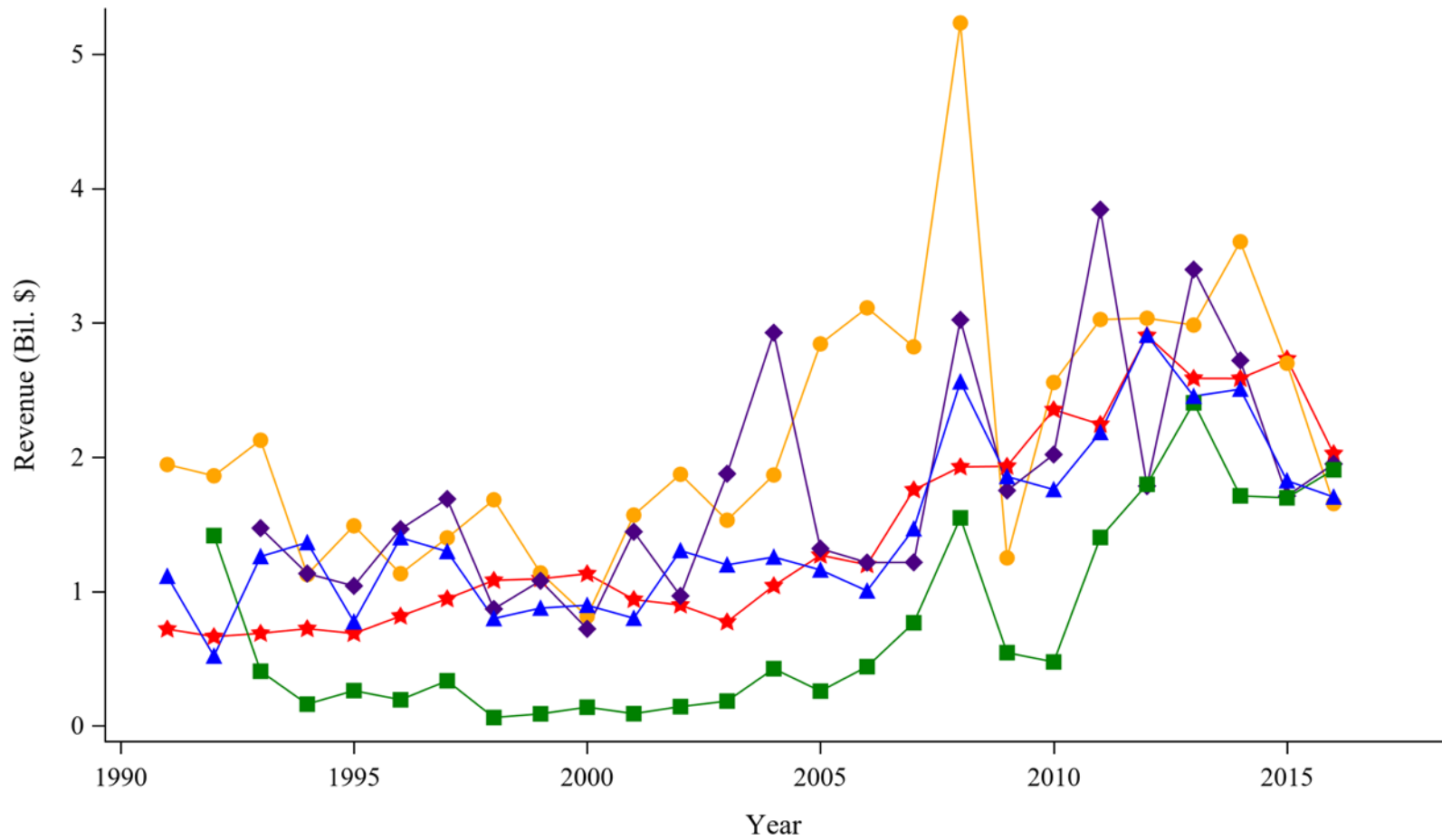
Figure 34: Top 6 to 10 Countries Revenue, Annual Trends



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Figure 35: Top 11 to 15 Countries Revenue, Annual Trends



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Table 27: Top 15 Countries Revenue, Annual Trends

| Country | Revenue (\$) | | | | | | |
|--------------------------|----------------|----------------|----------------|-----------------|----------------|----------------|----------------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| United States of America | 64,386,055,680 | 76,633,278,050 | 74,035,140,400 | 61,823,849,120 | 52,719,306,440 | 49,059,060,280 | 50,790,681,480 |
| China | 48,482,009,889 | 62,028,027,213 | 78,827,611,859 | 106,850,789,366 | 95,301,700,377 | 97,138,448,862 | 61,226,699,820 |
| Brazil | 9,409,769,036 | 14,251,987,190 | 16,102,720,737 | 16,226,349,700 | 14,852,919,515 | 11,777,866,576 | 11,780,742,158 |
| Argentina | 3,061,670,855 | 4,196,213,410 | 4,305,637,943 | 5,790,968,514 | 4,739,190,268 | 3,317,097,653 | 2,790,832,423 |
| Ukraine | 1,876,778,570 | 3,915,447,177 | 3,974,002,369 | 4,685,219,004 | 4,183,423,762 | 3,192,968,612 | 3,878,598,779 |
| India | 5,190,798,915 | 5,554,721,813 | 5,385,128,583 | 5,119,963,262 | 5,308,860,163 | 5,000,565,287 | 5,810,774,182 |
| Mexico | 5,193,866,645 | 5,788,603,570 | 6,719,249,843 | 5,972,626,275 | 5,455,688,558 | 5,333,250,839 | 5,343,776,987 |
| Indonesia | 5,915,161,135 | 6,250,129,342 | 6,827,921,627 | 6,167,892,535 | 5,880,123,431 | 5,534,010,539 | 6,266,743,241 |
| France | 3,452,039,655 | 4,124,566,745 | 4,249,415,364 | 3,420,606,495 | 3,572,141,056 | 2,383,722,533 | 2,133,621,337 |
| Canada | 1,954,192,928 | 2,549,977,913 | 3,378,124,836 | 3,190,100,944 | 1,927,439,247 | 2,039,857,639 | 1,805,823,050 |
| South Africa | 1,759,142,814 | 2,184,392,146 | 2,908,378,023 | 2,453,850,442 | 2,506,598,484 | 1,824,976,185 | 1,703,806,253 |
| Romania | 2,020,152,528 | 3,843,586,883 | 1,785,215,985 | 3,397,048,704 | 2,720,461,093 | 1,711,641,744 | 1,949,677,020 |
| Russian Federation | 475,430,956 | 1,402,091,996 | 1,797,851,917 | 2,405,038,616 | 1,712,207,169 | 1,697,635,070 | 1,905,965,874 |
| Nigeria | 2,556,429,750 | 3,025,462,565 | 3,034,683,717 | 2,983,856,246 | 3,604,787,940 | 2,699,775,894 | 1,654,580,882 |
| Egypt | 2,353,318,989 | 2,243,930,299 | 2,905,451,935 | 2,587,218,037 | 2,586,190,854 | 2,731,174,500 | 2,026,398,413 |

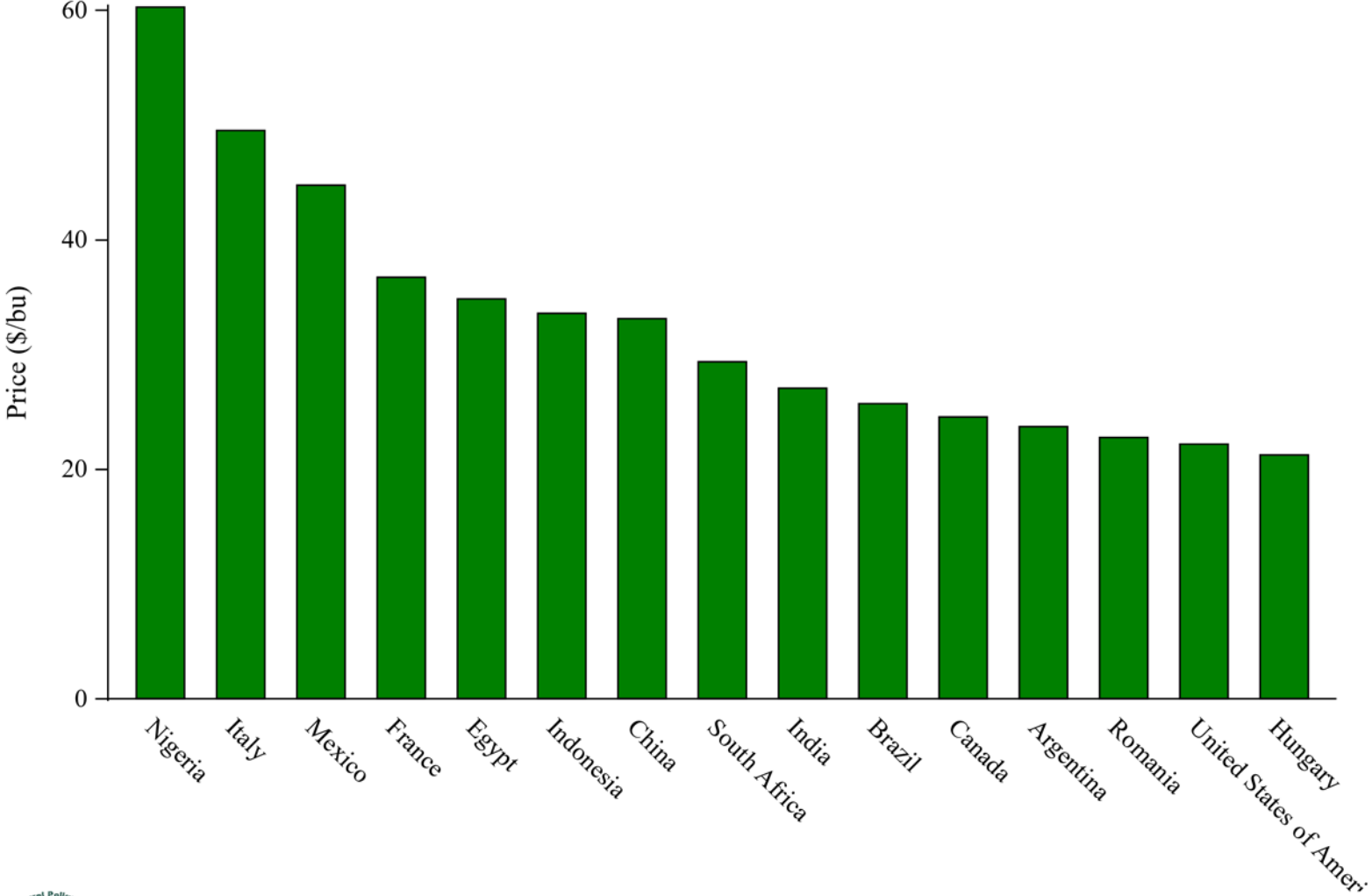
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Table 28: Top 15 Countries Revenue, Annual Trends

| Country | Share(percentages) | | | | | | |
|--------------------------|---------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| United States of America | 33.86 | 32.21 | 29.00 | 22.58 | 21.34 | 21.65 | 26.47 |
| China | 25.49 | 26.07 | 30.87 | 39.03 | 38.58 | 42.87 | 31.91 |
| Brazil | 4.95 | 5.99 | 6.31 | 5.93 | 6.01 | 5.20 | 6.14 |
| Argentina | 1.61 | 1.76 | 1.69 | 2.12 | 1.92 | 1.46 | 1.45 |
| Ukraine | 0.99 | 1.65 | 1.56 | 1.71 | 1.69 | 1.41 | 2.02 |
| India | 2.73 | 2.33 | 2.11 | 1.87 | 2.15 | 2.21 | 3.03 |
| Mexico | 2.73 | 2.43 | 2.63 | 2.18 | 2.21 | 2.35 | 2.79 |
| Indonesia | 3.11 | 2.63 | 2.67 | 2.25 | 2.38 | 2.44 | 3.27 |
| France | 1.82 | 1.73 | 1.66 | 1.25 | 1.45 | 1.05 | 1.11 |
| Canada | 1.03 | 1.07 | 1.32 | 1.17 | 0.78 | 0.90 | 0.94 |
| South Africa | 0.93 | 0.92 | 1.14 | 0.90 | 1.01 | 0.81 | 0.89 |
| Romania | 1.06 | 1.62 | 0.70 | 1.24 | 1.10 | 0.76 | 1.02 |
| Russian Federation | 0.25 | 0.59 | 0.70 | 0.88 | 0.69 | 0.75 | 0.99 |
| Nigeria | 1.34 | 1.27 | 1.19 | 1.09 | 1.46 | 1.19 | 0.86 |
| Egypt | 1.24 | 0.94 | 1.14 | 0.94 | 1.05 | 1.21 | 1.06 |

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Figure 36: Top 15 Countries Price, 1990 to 1999



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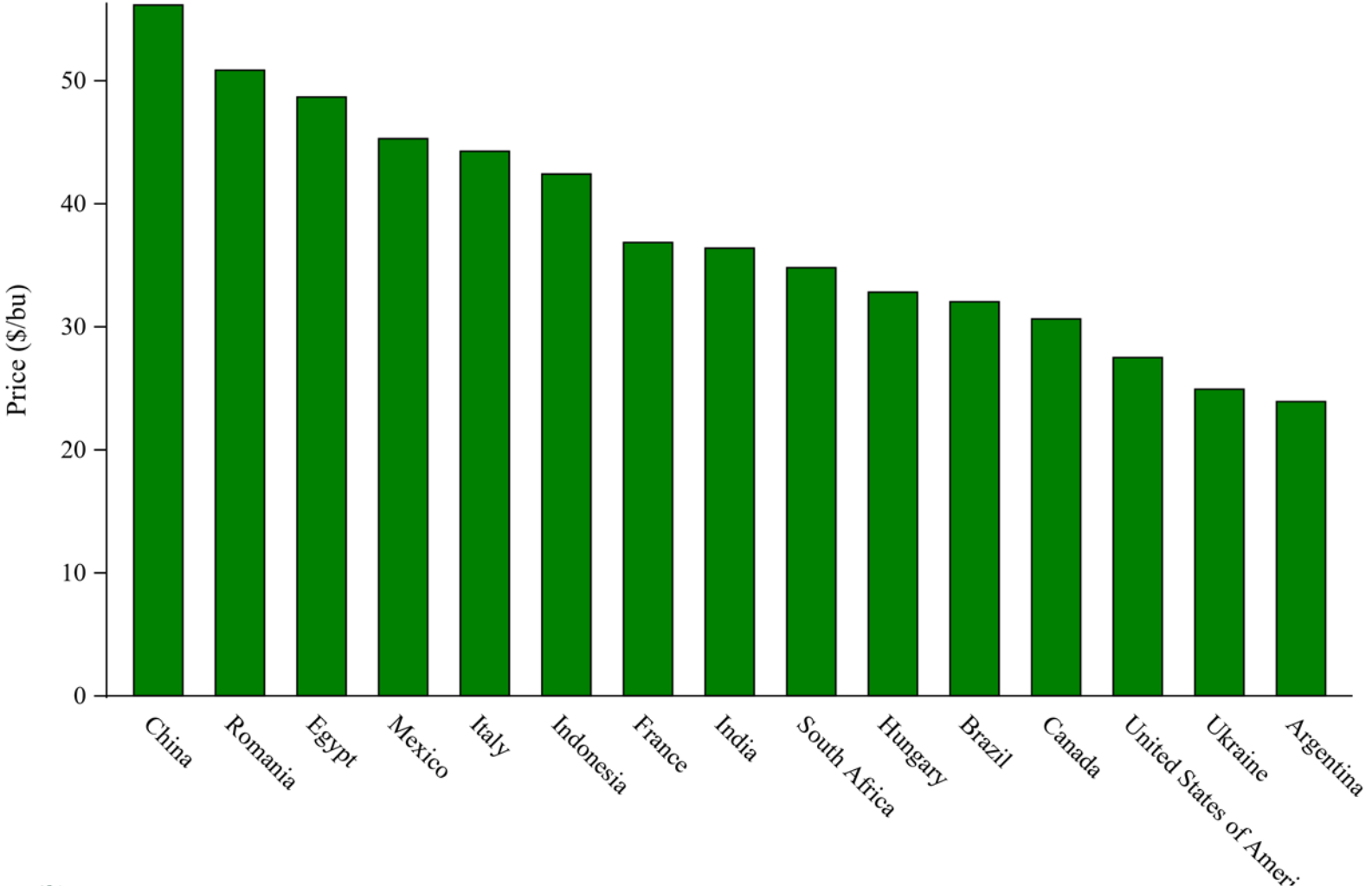


Table 29: Top 15 Countries Price, Descriptive Statistics for 1990 to 1999

| Country | Price (\$/bu) | | | |
|--------------------------|---------------|-------|-------|--------------------------|
| | N | Mean | Risk | Coefficient of Variation |
| Nigeria | 9 | 6.695 | 1.738 | 26.0 |
| Italy | 9 | 5.501 | 1.227 | 22.3 |
| Mexico | 9 | 4.971 | 0.950 | 19.1 |
| France | 9 | 4.079 | 0.888 | 21.8 |
| Egypt | 9 | 3.870 | 0.413 | 10.7 |
| Indonesia | 9 | 3.730 | 0.873 | 23.4 |
| China | 9 | 3.679 | 1.590 | 43.2 |
| South Africa | 9 | 3.262 | 0.533 | 16.3 |
| Romania | 7 | 3.250 | 0.800 | 24.6 |
| India | 9 | 3.006 | 0.241 | 8.0 |
| Brazil | 9 | 2.856 | 0.448 | 15.7 |
| Canada | 9 | 2.727 | 0.598 | 21.9 |
| Argentina | 9 | 2.634 | 0.612 | 23.2 |
| United States of America | 9 | 2.464 | 0.583 | 23.7 |
| Hungary | 9 | 2.360 | 0.509 | 21.6 |

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Figure 37: Top 15 Countries Price, 2000 to 2009



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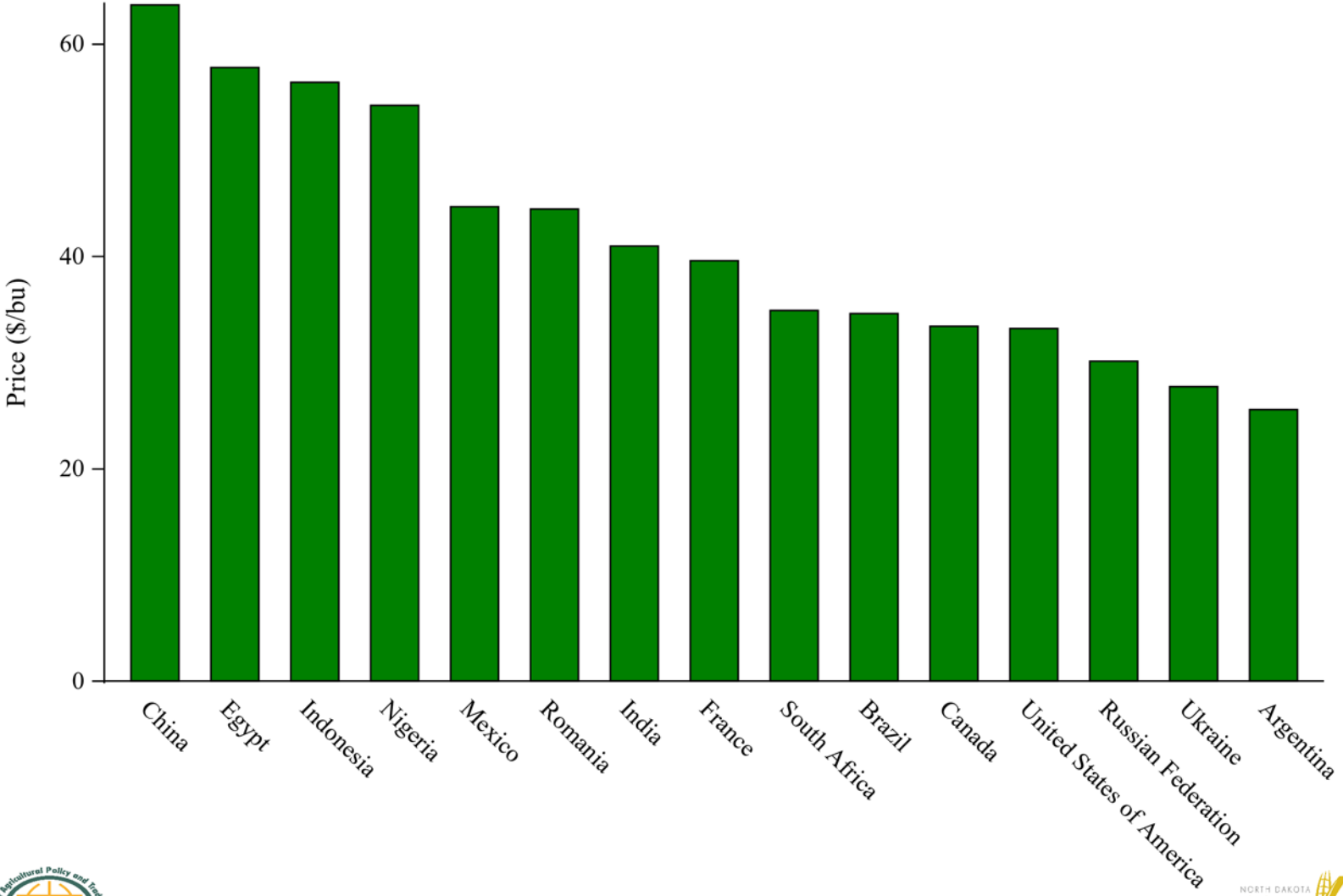


Table 30: Top 15 Countries Price, Descriptive Statistics for 2000 to 2009

| Country | Price (\$/bu) | | | |
|--------------------------|---------------|-------|-------|--------------------------|
| | N | Mean | Risk | Coefficient of Variation |
| China | 10 | 5.613 | 1.892 | 33.7 |
| Romania | 10 | 5.083 | 2.229 | 43.8 |
| Egypt | 10 | 4.865 | 1.388 | 28.5 |
| Mexico | 10 | 4.527 | 0.955 | 21.1 |
| Italy | 10 | 4.425 | 1.299 | 29.4 |
| Indonesia | 10 | 4.240 | 1.367 | 32.2 |
| France | 10 | 3.683 | 1.297 | 35.2 |
| India | 10 | 3.637 | 1.005 | 27.6 |
| South Africa | 10 | 3.478 | 1.057 | 30.4 |
| Hungary | 10 | 3.280 | 1.330 | 40.6 |
| Brazil | 10 | 3.202 | 1.108 | 34.6 |
| Canada | 10 | 3.062 | 0.833 | 27.2 |
| United States of America | 10 | 2.748 | 0.899 | 32.7 |
| Ukraine | 10 | 2.491 | 0.808 | 32.4 |
| Argentina | 10 | 2.390 | 0.574 | 24.0 |

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Figure 38: Top 15 Countries Price, 2010 to 2019



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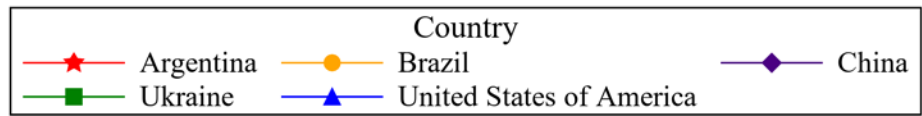
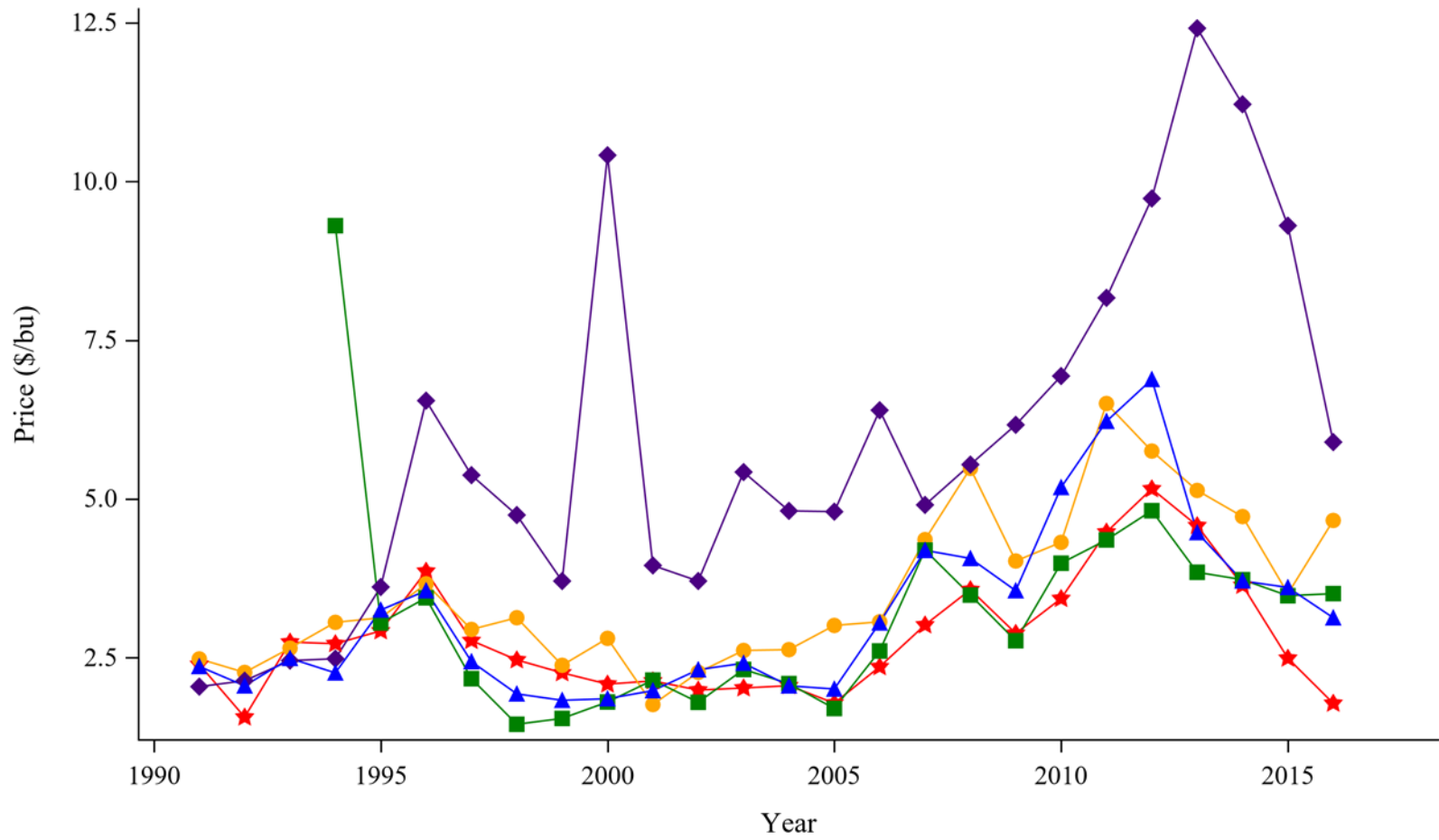


Table 31: Top 15 Countries Price, Descriptive Statistics for 2010 to 2019

| Country | Price (\$/bu) | | | |
|--------------------------|---------------|-------|-------|--------------------------|
| | N | Mean | Risk | Coefficient of Variation |
| China | 7 | 9.096 | 2.300 | 25.3 |
| Egypt | 7 | 8.255 | 0.817 | 9.9 |
| Indonesia | 7 | 8.055 | 0.856 | 10.6 |
| Nigeria | 7 | 7.745 | 2.018 | 26.1 |
| Mexico | 7 | 6.382 | 1.274 | 20.0 |
| Romania | 7 | 6.350 | 1.492 | 23.5 |
| India | 7 | 5.852 | 0.392 | 6.7 |
| France | 7 | 5.655 | 1.025 | 18.1 |
| South Africa | 7 | 4.986 | 0.857 | 17.2 |
| Brazil | 7 | 4.943 | 0.976 | 19.7 |
| Canada | 7 | 4.773 | 1.214 | 25.4 |
| United States of America | 7 | 4.744 | 1.415 | 29.8 |
| Russian Federation | 7 | 4.303 | 0.988 | 23.0 |
| Ukraine | 7 | 3.960 | 0.482 | 12.2 |
| Argentina | 7 | 3.652 | 1.205 | 33.0 |

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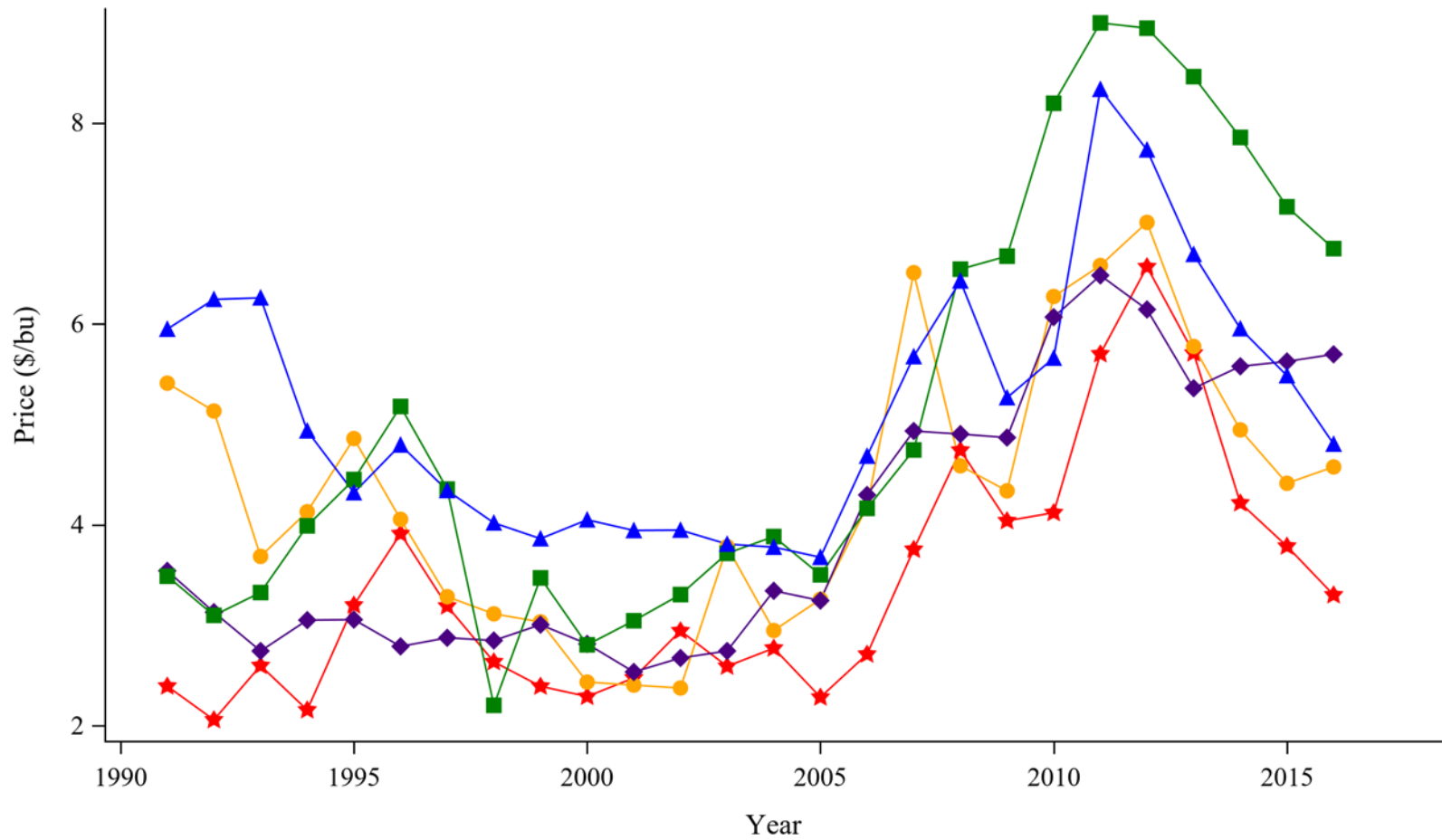
Figure 39: Top 5 Countries Price, Annual Trends



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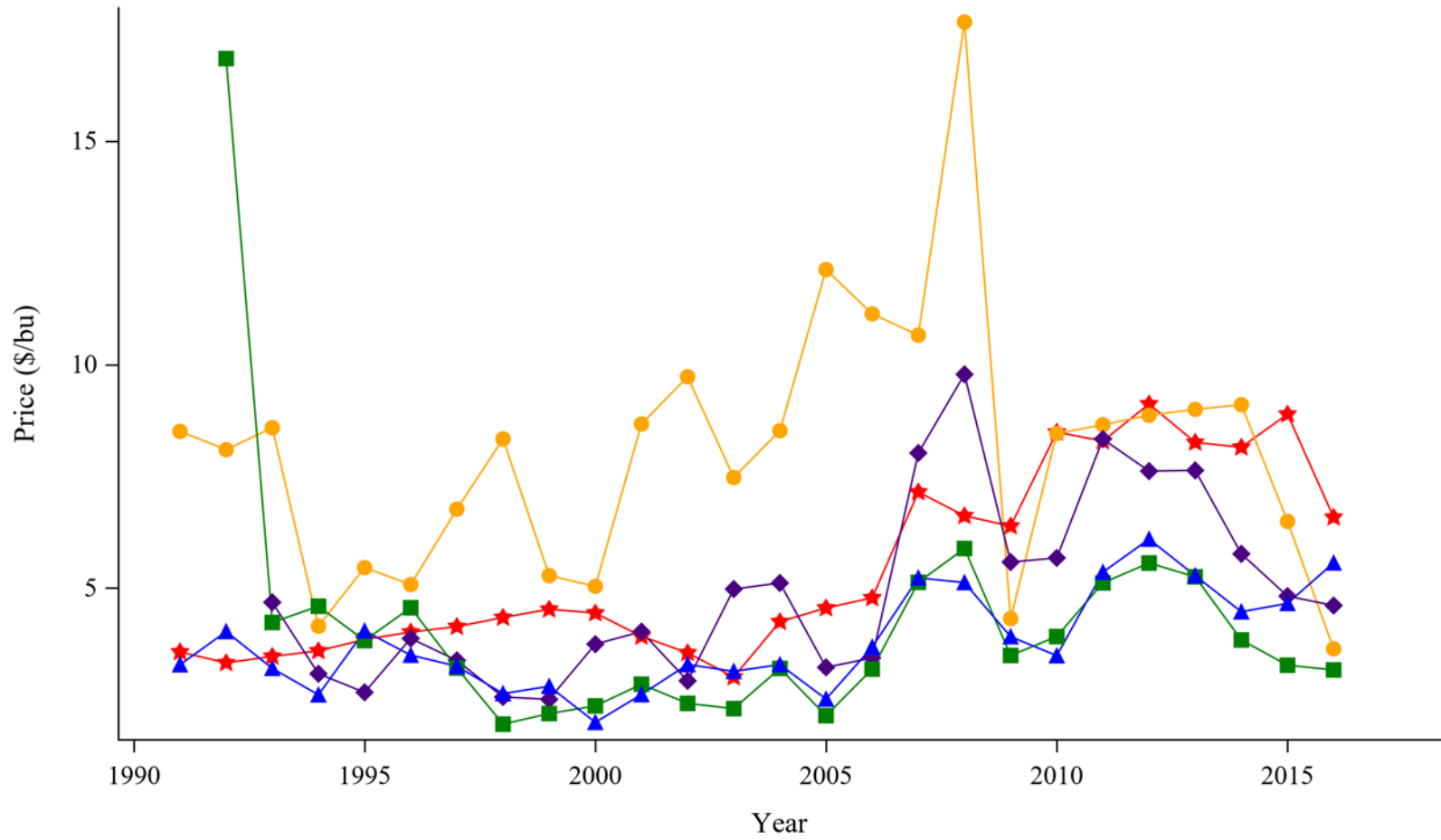
Figure 40: Top 6 to 10 Countries Price, Annual Trends



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Figure 41: Top 11 to 15 Countries Price, Annual Trends



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Table 32: Top 15 Countries Price, Annual Trends

| | Price (\$ bu) | | | | | | |
|--------------------------|------------------|------|------|-------|-------|------|------|
| Country | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| United States of America | 5.18 | 6.22 | 6.88 | 4.47 | 3.71 | 3.61 | 3.13 |
| China | 6.94 | 8.17 | 9.73 | 12.41 | 11.22 | 9.31 | 5.90 |
| Brazil | 4.32 | 6.50 | 5.76 | 5.13 | 4.72 | 3.51 | 4.66 |
| Argentina | 3.43 | 4.48 | 5.16 | 4.58 | 3.64 | 2.49 | 1.78 |
| Ukraine | 3.99 | 4.35 | 4.82 | 3.85 | 3.73 | 3.48 | 3.51 |
| India | 6.07 | 6.48 | 6.15 | 5.36 | 5.58 | 5.63 | 5.70 |
| Mexico | 5.66 | 8.34 | 7.73 | 6.69 | 5.95 | 5.49 | 4.80 |
| Indonesia | 8.20 | 9.00 | 8.95 | 8.46 | 7.86 | 7.17 | 6.75 |
| France | 6.27 | 6.58 | 7.01 | 5.78 | 4.95 | 4.41 | 4.58 |
| Canada | 4.12 | 5.70 | 6.57 | 5.71 | 4.22 | 3.79 | 3.30 |
| South Africa | 3.49 | 5.36 | 6.10 | 5.28 | 4.47 | 4.66 | 5.56 |
| Romania | 5.68 | 8.33 | 7.62 | 7.63 | 5.76 | 4.82 | 4.61 |
| Russian Federation | 3.92 | 5.12 | 5.56 | 5.25 | 3.84 | 3.27 | 3.17 |
| Nigeria | 8.46 | 8.66 | 8.87 | 9.00 | 9.10 | 6.49 | 3.64 |
| Egypt | 8.49 | 8.29 | 9.12 | 8.26 | 8.15 | 8.89 | 6.58 |

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